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EVALUATIONS OF SOVIET SURFACE-TO-SURFACE MISSILE DEPLOYMENT

19TH REVISION

A Report of the Deployment Working Group

of the

Guided Missile and Astronautics Intelligence Committee

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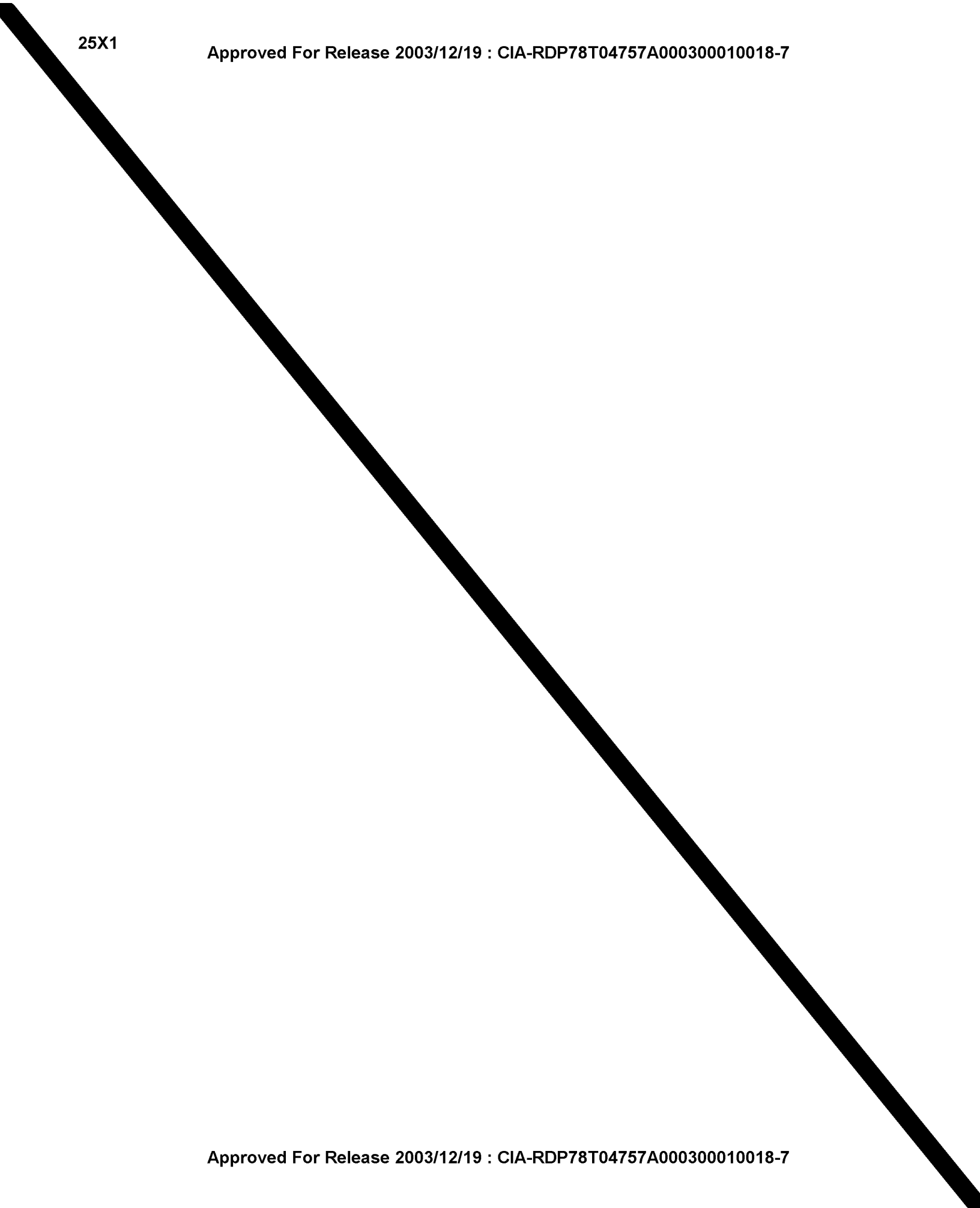
The Guided Missile and Astronautics Intelligence Committee (GMAIC) wishes to express its appreciation to the National Photographic Interpretation Center for its assistance in the editing, illustration, and publication of this report.



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PREFACE

This report, published bimonthly by the GMAIC Deployment Working Group (DWG), provides a comprehensive, ready-reference listing of all ICBM, IRBM, and MRBM deployment locations, types of site configurations, photographic references, estimated construction and operational status, and other evaluations by the DWG. These data constitute the majority view of the DWG membership, and may not correspond precisely to individual assessments by each member. Additional data may be added to future revisions.

Dissemination of the report was previously limited to holders of the DWG report, Soviet Surface-to-Surface Missile Deployment. Because the information contained herein is both supplemental and self-sustaining, distribution will no longer be limited to holders of the above report.

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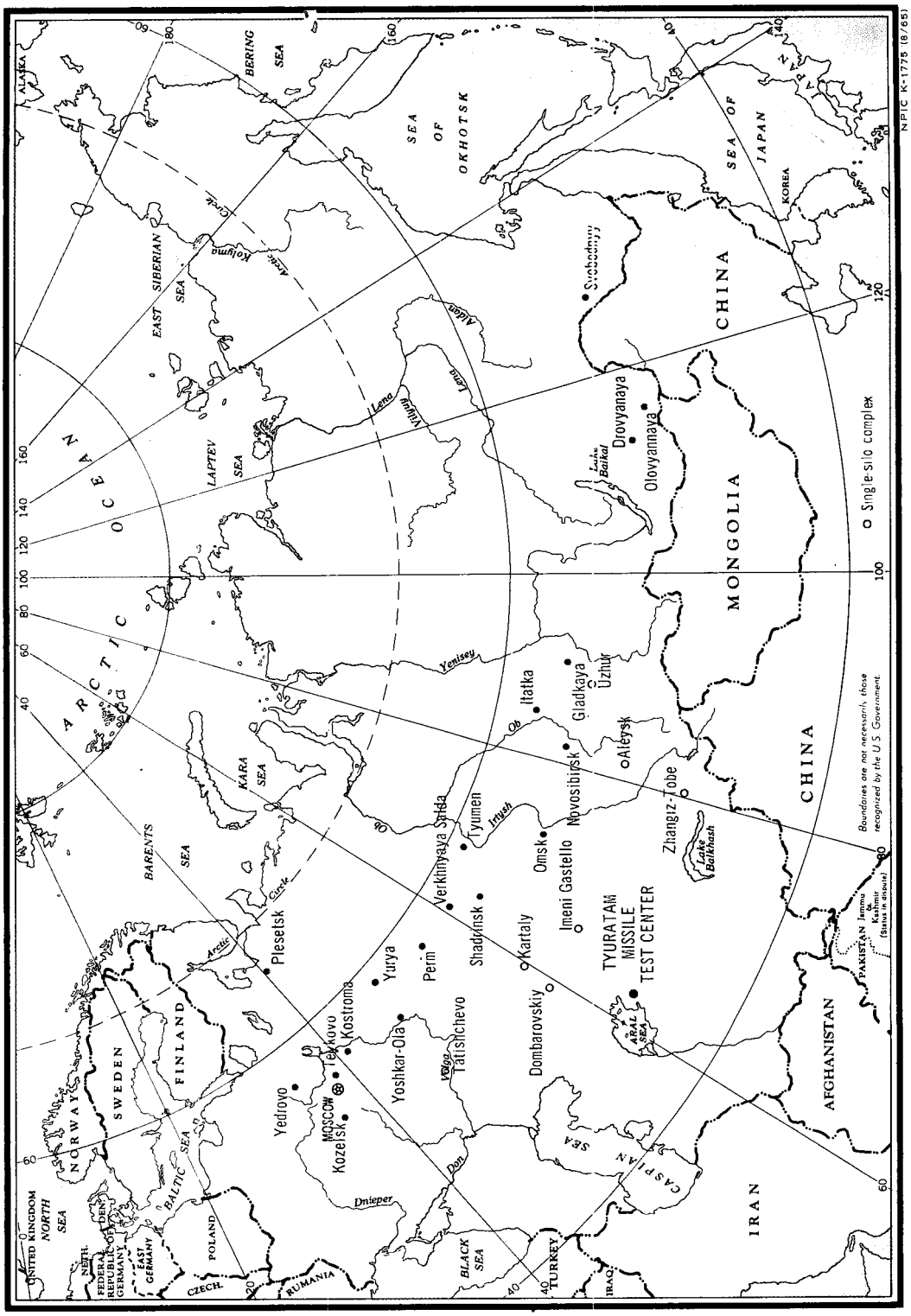

FIGURE 1. DEPLOYMENT OF SOVIET ICBM COMPLEXES.

INTRODUCTION

This report is the 19th Revision of Evaluations of Soviet Surface-to-Surface Missile Deployment prepared by the Deployment Working Group (DWG) of the Guided Missile and Astronautics Intelligence Committee (GMAIC). The information contained in this and previous revisions is self-sustaining and supplements the basic DWG report Soviet Surface-to-Surface Missile Deployment which provides detailed information on individual launch facilities of the Soviet Strategic Rocket Forces. The basic report, dated 1 January 1962 (Control Number [redacted] has been revised and updated on a periodic basis. Further updating is accomplished in reports prepared and published for GMAIC by the National Photographic Interpretation Center.

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[redacted]

of previous missions and other sources have provided additional information on the Soviet strategic missile deployment program. The new data are reflected in Table 1 and in the estimated operational status shown in Tables 2 through 6. Technical characteristics of Soviet ICBM, IRBM, and MRBM systems currently operational or under development are given in Table 10. Cutoff date for information contained in this report is 25 June 1965.

SOVIET ICBM DEPLOYMENT

Significant developments in the Soviet ICBM deployment program and related activities since publication of our 18th Revision include 1) identification of additional single-silo sites under construction at deployed complexes, 2) completion of the first single-silo site and identification of a new rail-served soft site at the Tyuratam Missile Test Center, 3) additional flight testing of a probable new ICBM, and 4) display of 3 new strategic missiles in the 9 May 1965 Moscow Parade.

CURRENT DEPLOYMENT

No new ICBM complexes have been identified since out latest revision; the total number identified to date remains at 25. These complexes now contain a total of 369 confirmed and probable launchers in various stages of construction, an increase of 28 over the number reported in our 18th Revision. Of these 369 launchers, 150 are soft and 219 are hard. Included in the hard launchers are 141 single silos. In addition, we are carrying 11 additional single-silo sites in the possible category. See Figure 1 for locations of deployed ICBM complexes.

Of the 369 confirmed and probable launchers, 224 are estimated to be operational, including 78 in a hard configuration. In addition, 30 of the 49 launchers at Tyuratam are now completed, although not normally considered as part of the operational ICBM force. The ICBM sites have been designated by type, as shown and explained in Figure 2.

Evaluation of all evidence received since our latest revision has resulted in the following additions at the complexes indicated, and at Tyuratam:

DOMBAROVSKIY, Launch Site F(7), Type IIIC, under construction

IMENI GASTELLO, Launch Sites H(8), I(9), and J(10), Type IIIC, under construction

KARTALY, Probable Launch Site I(10), and Possible Launch Site J, Type IIIC, under construction

OLOVYANNAYA, Probable Launch Groups F(24) and G(25-27), Type IIID, under construction

PERM, Launch Group H, Type IIID, under construction

TATISHCHEVO, Launch Group D(28-29), Type IIID, under construction

UZHUR, Launch Site L(12), Probable Launch Site M(13), and Launch Site N(14), Type IIIC, under construction

TYURATAM, Launch Site A4, Type I, complete; Launch Sites J1 and J2, Type I, under construction.

SINGLE-SILO DEPLOYMENT

General

Confirmed single-silo deployment continues to be limited to the 7 newer and 4 older complexes; suspect activity at a fifth older complex, Kozelsk, has not been covered by usable photography since our latest revision. The number of sites under construction at these complexes continues to grow and it is apparent that deployment of both Type IIIC and IIID sites is continuing.

Type IIIC Sites

GENERAL

Identified Type IIIC single-silo deployment remains limited to the Aleysk, Dombarovskiy, Imeni Gastello, Kartaly, Uzhur and Zhangiz-Tobe Complexes, where a total of 51 confirmed and probable, and 1 possible, sites have been observed under construction. Thirty-eight of the 51 confirmed and probable sites were begun [redacted] construction of the remaining 13 (and 1 possible) sites commenced [redacted]

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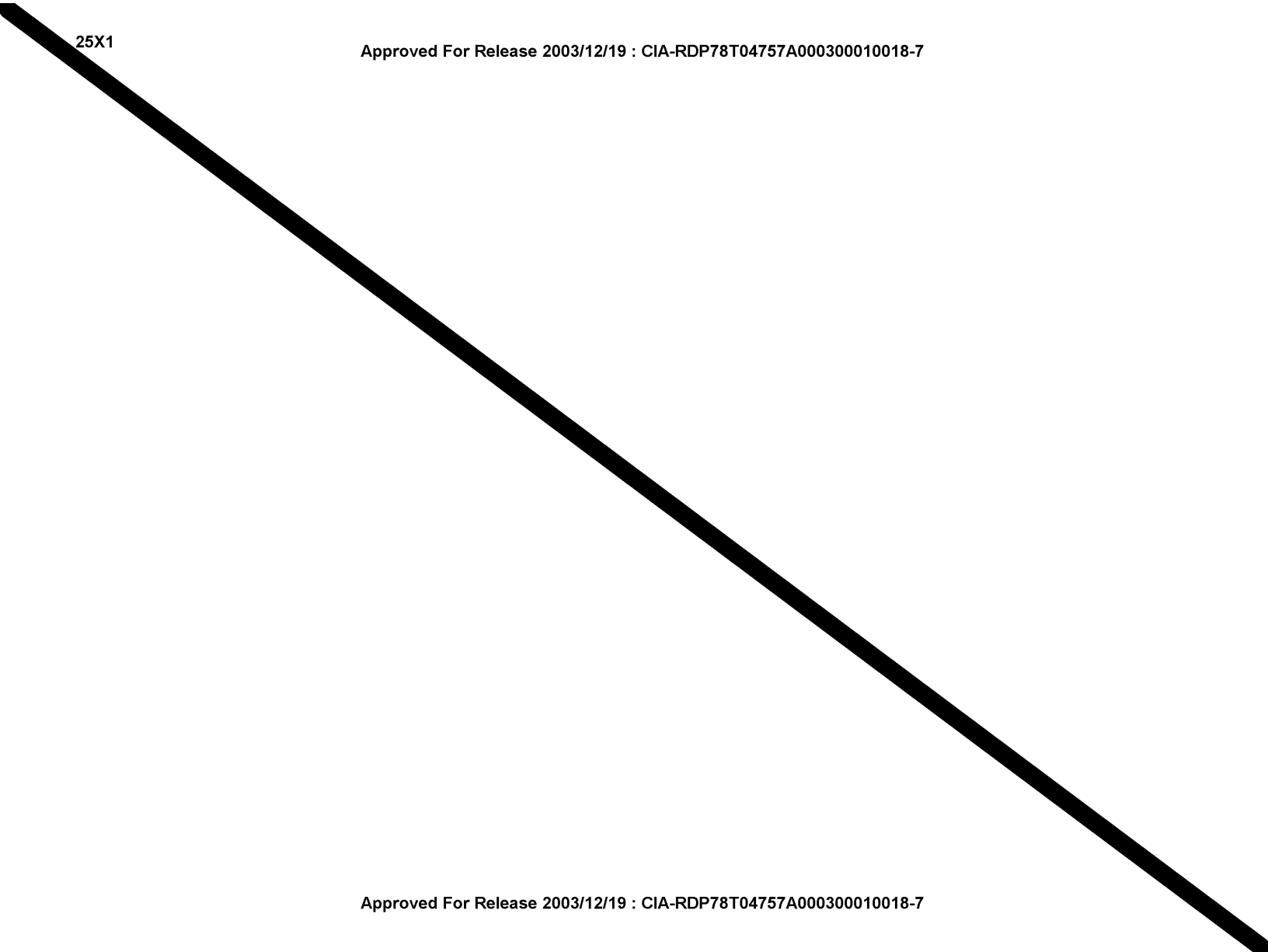
Total sites at each of the 6 Type IIIC complexes range from a low of 6 at Aleysk, Dombarovskiy, and Zhangiz-Tobe, to a high of 14 at Uzhur. Imeni Gastello has 10 sites, and Kartaly 9 (plus 1 possible). Analysis of construction activity at each of the complexes indicates that planned deployment -- at least in terms of the pace of site activation -- is not the same for all 6 complexes. The activation of new sites has been progressing at a fairly even pace at those complexes containing more than 6 sites. At Aleysk, however, no new site construction has been observed since [redacted] 25X1 at Zhangiz-Tobe, none has been identified since [redacted] The sixth site at Dombarovskiy 25X1 was not begun until [redacted] about [redacted] months after initiation of construction activity at 25X1 the fifth site. The size of the complex support facilities at Type IIIC complexes indicates that all of them will contain more than 6 sites. No reliable estimate can be made of the maximum number of sites to be deployed at any one of the complexes. It does appear, however, that not all of the complexes are programmed for the same number of sites.

Early assessment of Type IIIC site deployment indicated a pattern of site layout in groups of 3, with 1 launch control center for each 3 sites (See 17th Revision). To date, this assessment has not been borne out -- we have identified a control facility at only 1 of the first 6 sites at each complex, but have not yet observed any firm evidence of a second. Suspect areas for a second control facility at Launch Site F(6) at Aleysk and Launch Site C(3) at Imeni Gastello fail to show any construction progress on recent coverage. Because of the lack of evidence of a second control facility under construction at any of the 6 complexes, we are currently re-examining our method of estimating site completions based on the "group of 3" concept. We have also noted that none of the Type IIIC sites in the field has advanced to a late stage of construction,* although some have been under

*To clarify the terms used in referring to construction stages at single-silo sites, identifiable steps in the construction process have been categorized as follows: early stage, clearing and grading, open-cut silo excavation, silo coring; midstage, silo under construction, silo backfilling; late stage, silo door installed, final backfill and grading; complete, final configuration apparent; operational, equipment installed and checked out (estimated).



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construction for about 18 months. Therefore, we are also reexamining our previous estimate that the minimum completion time (for a group of 3 sites) will be 21 to 24 months. Succeeding paragraphs summarize developments since our latest revision at the individual complexes where Type IIIC sites are currently under construction.

ALEYSK COMPLEX

25X1 All 6 single-silo launch sites remain in a [redacted] further details of construction activity at all of the sites. At Launch Site A(1), 2 construction ramps extend to the square silo structure which has been built up from the bottom of the excavation. A track-like configuration, aligned with the silo, is on the rectangular mound adjacent to the northwest side of the silo excavation (Figure 3). At Launch Site B(2), the silo structure is apparent at the bottom of the excavation and a square structure entirely covers the square mound adjacent to the southeast side of the excavation (Figure 4). A track-like configuration, identical to that at Launch Site A(1), is visible on the rectangular mound adjacent to the northwest side of the silo excavation at Launch Site C(3) on [redacted] A control/guidance facility also can now be confirmed at this site (Figure 5). Construction of an L-shaped electronic facility is underway, and work has progressed at the control building located at the apex of the "L". Two very large building foundations are newly identified immediately outside the security fence southwest of the launch site. The silo structure is apparent at the bottom of the excavation at Launch Site D(4), and a circular probable environmental shelter covers the silo aperture. At Launch Site E(5), only part of the silo structure is visible at the bottom of the excavation. Adjacent to the square mound which contains a ring-like object are about 50 shipping crates (Figure 6). The area suspect for construction of a control/guidance facility at Launch Site F(6) was covered by [redacted] (see 18th Revision). There is no indication that construction of an L-shaped interferometer and control center is underway at this launch site.

DOMBAROVSKIY COMPLEX

[redacted] coverage of Dombarovskiy revealed a sixth single silo, designated Launch Site F(7), in an early stage of construction approximately 13 nm northwest of the complex support facility (Figure 7). The new site can be negated on [redacted] The site support facility, approximately 1,000 feet northeast of the launch site, contains 2 large and 14 small buildings, all under construction. Launch Site E(6), the only other site at this complex observed since our latest revision, has progressed to a midstage of construction. The silo is under construction in the coring, and extends upward nearly to the bottom of the square excavation. Schematic layout of the complex is shown in Figure 8.

IMENI GASTELLO COMPLEX

[redacted] struction activity at Imeni Gastello, including the identification of 3 new launch sites, designated H(8), I(9) and J(10), all in an early stage of construction. Launch Site H(8) can be negated [redacted] consists of a silo coring in the approximate center of a typical U-shaped excavation. Launch Site I(9) can be negated on [redacted] in [redacted] and evidence of initial construction activity can be identified on [redacted] The site still appeared to be in

an early construction stage when viewed on [redacted] indicating relatively slow construction progress. Launch Site J(10), first seen on [redacted] can be negated on M[redacted]

Launch Site A(1) remains in a midstage of construction, with the silo structure near ground level (Figure 9). A newly identified cylindrical object, approximately 110 feet long and 10 feet in diameter, is situated along the long axis of the paved rectangle adjacent to the silo excavation. This object, which appears to be resting on a cradle or platform, is in the same relative position as the track-like configuration at Launch Sites A(1) and C(3) at Aleysk. No such configuration has been identified previously at this site; if present, it is hidden by the cylindrical object. A newly identified shallow rectangular excavation is located approximately 350 feet east of the silo excavation. It appears to be connected by trenching or conduit to a rectangular building approximately 150 feet east of the silo structure. A second newly identified excavation, square and shallow, is visible approximately 500 feet northwest of the silo excavation. Within the silo excavation, a small T-shaped structure is evident immediately adjacent to the east side of the silo structure.

Launch Site B(2) remains in a midstage of construction (Figure 10). Unidentified activity is apparent on the graded rectangular earth mound northwest of the silo excavation. There are 3 long, linear objects on the mound. A fourth object of the same general configuration, located immediately north of the silo excavation, is apparently being towed by a small tractor-like vehicle. These objects appear to be half the length of those observed at Launch Site A(1).

Launch Site C(3) also remains in a midstage of construction (Figure 11). A prominent newly identified trench extends from the east side of the silo excavation and then angles in a southerly direction to a point southwest of the excavation. Activity at an area suspect for construction of a control facility at this site (see 18th Revision) has failed to develop on more recent coverage.

Launch Site D(4) remains in a midstage of construction, with the silo structure apparently near ground level (Figure 12). As at Launch Site A(1), a cylindrical object approximately 110 by 10 feet rests on a cradle or platform along the long axis of the rectangular earth mound adjacent to the silo excavation. Construction of a guidance/control facility at this site is now confirmed, with both an L-shaped electronic facility and associated control bunker readily visible.

Launch Sites E(5) and F(6) are both in midstage, with the former containing a cylindrical object identical to those at Launch Sites A(1) and D(4). Launch Site G(7), consisting of a typical U-shaped excavation and silo coring, remains in an early construction status. The security fence at this site is unusually large, with an outline similar to that of Launch Site D(4), suggesting eventual accommodation of a control/guidance facility.

Intersite cabling is also evident at the Imeni Gastello Complex, with newly identified cable scars extending from Launch Site D(4) to B(2). Similar scars connecting Launch Site D(4) to E(5) and F(6), have been identified previously. In our 18th Revision we reported apparent plus configurations defined by areas of ground scarring at Launch Sites A(1) through G(7). These areas are no longer visible on more recent coverage, and we no longer suspect that they are associated with guidance or, as such, represent a unique difference between the sites at Imeni Gastello and those at the other 5 complexes containing Type IIIC sites. Schematic layout of the launch sites at Imeni Gastello is shown in Figure 13.

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KARTALY COMPLEX

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detailed information, including identification of 1 probable new site and 1 possible new site under construction. The sites are designated Launch Sites I(10) and J, respectively. Both sites can be negated on 25X1

25X1

The silo structure at Launch Site A(1) has now reached ground level (Figure 14). A second excavation southeast of the silo excavation contains a control bunker under construction at the apex of a partially completed site and also contains an L-shaped electronics facility. Launch Site B(2) remains at midstage, with the silo structure at ground level and 2 ramps extending to it. A T-shaped structure also is apparent in the silo excavation. A faintly discernible object--possibly similar to the cylindrical objects identified at the Imeni Gastello Complex--is present on the rectangular earth mound adjacent to the silo excavation.

No significant changes are visible at Launch Sites D(4), E(5), F(6), and G(7). All are in midstage except Launch Site G(7), which remains in an early construction stage. At Launch Site H(8), a large elevated net has been placed over the silo excavation (Figure 15). The site is in a midstage of construction, with the silo coring and equipment visible through the

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A schematic layout of the Kartaly launch sites is shown in Figure 16.

UZHUR COMPLEX

The Uzhur Complex was covered, at least partly, by 4 of the 5 photographic missions since our 18th Revision. Highlights of these coverages were confirmation of Launch Sites H(8) and K(11), both in a mid-construction stage, and the identification of Launch Sites L(12), M(13)*, and N(14), all in an early stage of construction. The latter 3 sites can be negated on various missions in 25X1 are first visible on various missions in 25X1 Launch Sites A through F(1-6) remain in a midstage of construction, and Launch Sites G(7), I(9), and J(10) are still in an early stage. 25X1

Launch Site A(1) shows no significant change since 25X1 The control building and the segments of the electronic facility at Launch Area B(2) are not yet backfilled. A linear, probably cylindrical, object is located on the surfaced rectangular earth mound adjacent to the silo excavations at Launch Sites B(2), E(5), and F(6). Construction continues at the complex support facility (Figure 17), with the most significant activity in the west and southwest portions. There are at least 4 major buildings under construction, and footings for several others are evident. Construction also continues at the rail-to-road transfer point (Figure 18), where there are now 6 major buildings, several smaller buildings, and a parallel road system under construction. A considerable amount of construction material is stacked along the rail spur within the transfer point. A schematic layout of the Uzhur Complex is shown in Figure 19.

ZHANGIZ-TOBE COMPLEX

provided 25X1 good-quality, stereo photography of the 6 identified launch sites at Zhangiz-Tobe. Significant developments include confirmation of a control/guidance facility (Figure 20) under construction at Launch Site A(1); identification of a linear object on a cradle or platform along

*Launch Site M(13) currently is carried in the probable category.

the long axis of the rectangular earth mound at Launch Sites A(1) and B(2); and evidence of silo construction which permits confirmation of Launch Site F(6). All 6 sites are in a midstage of construction.

Type IIID Sites

GENERAL

Identified Type IIID single-silo deployment remains limited to the Tatishchevo Complex and 4 of the 18 older ICBM complexes (Drovyanaya, Gladkaya, Olovyannaya, and Perm). We have identified a total of 90 confirmed and probable, and 10 possible Type IIID launch sites which we believe are components of 14 launch groups. We continue to believe that each launch group will ultimately contain 10 silos; in many instances, however, it is impossible to determine the specific sites associated with individual launch groups. Of the 14 identified launch groups, some 12 were begun [redacted] and the remaining 2 [redacted] As far as individual silos are concerned (including possibles), about 85 were started [redacted] Two of the 14 launch groups have reached a late stage of construction, 5 are in midstage, and the remaining 7 are in an early stage. We are reexamining our previous estimate that a minimum of 18 to 21 months will be required for each launch group to reach an operational status.

Succeeding paragraphs summarize developments since our latest revision at complexes where deployment of Type IIID launch groups has been identified.

DROVYANAYA COMPLEX

Coverage of the Type IIID launch sites at [redacted] confirmed construction of at least 2 launch groups, designated G and H. Launch Group G contains 10 confirmed sites, G1(7) through G10(18), all of which were begun during the period [redacted] Site G2(8) will contain the control and guidance facility for the launch group. Sites G1(7) and G6(12) are in a late stage of construction. The remainder are at midstage.

Launch Group H currently contains 9 confirmed sites, designated H1(16) through H9(26). Construction of these 9 sites was begun during the latter part [redacted] and the early part of [redacted] The launch group is in a midstage of construction.

GLADKAYA COMPLEX

[redacted] Type IIID launch sites at Gladkaya; however, discovery of Launch Site F10(20) appears to round out Launch Group F(7-20), with 7 confirmed and probable and 3 possible sites. In addition, identification of probable Launch Site G4(21), added to the 3 possible Launch Sites G1-G3(16-18) formerly carried in Launch Group G, permit this group to be elevated from the possible to the probable category. Details of construction activity at both groups could not be discerned. Launch Group F(7-20) has reached a midstage of construction, while probable Launch Group G(16-21) is still in an early stage.

OLOVYANNAYA COMPLEX

Highlight of coverage of the Olovyannaya Complex on [redacted] received since our latest revision is the identification of 2 new Type IIID probable launch groups, designated Launch Groups F and G, on [redacted] Although a total of only 4 sites has been identified for both launch groups, 2 of the sites probably have support/control facilities associated with them, and the spacing of the sites also is indicative of

2 launch groups. Launch Site F1(24), the only site identified in probable Launch Group F, is located immediately west of the rail-to-road transfer point and consists of a generally triangular-shaped security fence enclosing a silo in a midstage of construction (Figure 21). A group of 6 large and 4 small buildings is under construction within the fence. The site
25X1 can be negated on [redacted]
25X1 [redacted] and was first seen later the same month
25X1 [redacted]

Launch Site G1(25) is located approximately 5 nm southwest of the complex support facility and consists of a silo in a midstage of construction with a group of approximately 5 buildings under construction nearby (Figure 22). Two other new sites, Launch Sites G2(26) and G3 (27), appear to be associated with Launch Site G1, since they are both located within 3 nm of it. Both are in a midstage of construction. As is the case with Launch Site F1(24), all 3 sites
25X1 in probable Launch Group G were negated and
25X1 first seen on successive missions in [redacted]

Launch Group D(4-13) is now in a late stage of construction, with backfilling completed at 9 of the 10 sites. All 10 sites at Launch Group E (14-23) remain in a midstage of construction. A probable control building is under construction at Launch Site E1(17).

PERM COMPLEX

25X1 Type IIID Launch Sites at Perm received [redacted] of 11 confirmed and probable and 2 possible sites has now been identified at this complex, confirming that 2 launch groups are currently under construction. These groups have been designated Launch Groups G and H. We are unable, however, to determine which sites belong to each group. Therefore, for purposes of identification, we have designated them G1(7) through G13(17) pending further coverage.

TATISHCHEVO COMPLEX

[redacted] 25X1

and C(23-27) and indicated that a fourth launch group, designated Launch Group D, is probably under construction. The pattern of sites for Launch Groups C and D is not yet clearly defined. A total of 8 confirmed and probable and 2 possible sites can be identified; their locations south, west, and north of Launch Group B(12-21) indicate not only that 2 launch groups, in addition to Launch Groups A and B, are under construction, but that 1 or 2 sites currently carried in Launch Group B(12-21) may, in fact, belong to 1 of the other launch groups. Pending further coverage, we are designating these 10 sites as Launch Sites C1(23) through C10(29) for identification purposes.

Launch Group A(1-11) is now in a late stage of construction, with most, if not all, of the silos backfilled and the loop roads and graded silo accesses well defined. Most of the silos appear to have doors, although the configurations of the doors cannot be determined. At Launch Site A1(1), an L-shaped electronics facility is newly identified, confirming this site as furnishing support, control, and probable guidance for the group (Figure 23). Construction continues at the previously identified control/bunker, located at the apex of the "L".

Launch Group B(12-21) is now confirmed, with all 10 sites in a midstage of construction. Launch Site B2(13) is enclosed by a large security fence, and a probable support/control facility is under construction (Figure 24).

Recent coverage of the Tatishchevo complex support facility reveals that it has undergone considerable expansion. The rail-to-road transfer point (Figure 25), in particular, has been expanded extensively since [redacted] A large volume of freight traffic is evident at the railhead and a great deal of off-loaded materials is visible. The level of activity tends to indicate that this facility will continue to expand and will probably support more than the 4 launch groups currently under construction.

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25X1

Associated Missile Systems

We are continuing our attempts to relate missile systems to the Type IIIC and IIID single-silo sites currently under construction at deployed complexes. We believe it almost certain that some, if not all, of the Type IIIC sites will accommodate the SS-9 missile system now at or near initial operational capability. We recognize the possibility that the SS-10 may also be employed in these silos; however, the latest identified firing of this missile system occurred on [redacted] This gap of almost 9 months in identified firings, after an apparently successful early flight test program (only 1 failure in 8 firings), suggests that the Soviets may have delayed or abandoned further development and deployment of the SS-10 missile system.

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We believe that the Type IIID silos are too small to accommodate either the SS-9 or SS-10 ICBM, and 2 other missile systems appear to be candidates for deployment at Type IIID sites. The first is the 65-foot, 3-stage, solid-propellant ICBM (SAVAGE) displayed by the Soviets in the 9 May 1965 Moscow Parade (Figure 26). There is no evidence, however, that this missile system has ever been flight tested, although flight tests of individual stages or components could have occurred at Kapustin Yar. Another candidate, considering the demonstrated Soviet proclivity for concurrency of site construction and flight testing, is the possible new ICBM launched from Tyuratam on [redacted] Preliminary analysis of this new system indicates a 2-stage vehicle, probably employing liquid propellants. Further information and analysis will be required before a more definitive judgment can be made.

25X1

OTHER ACTIVITY AT DEPLOYED COMPLEXES

Itatka Complex

[redacted] revealed a probable missile exercise underway at the 3 launch sites comprising the Itatka Complex (Figure 27). A prime mover and trailer containing a possible missile is on the right pad at Launch Site A(1). Two additional possible missiles are on trailers in front of the left ready building. There appear to be 12 fuel trailers on the loop road in front of the pads. At Launch Site B(2), 2 trailers containing possible missiles are in front of the right ready building. The right pad at Launch Site C(3) contains a prime mover and a possible missile on a transporter.

25X1

Plesetsk Complex

The Plesetsk Complex has been covered by [redacted] photography since our latest revision, but darkness and poor image quality limited interpretation of continuing construction activity at probable Launch Sites G(9) and H(10) and the 2 areas of unidentified activity (1 suspect for a new launch facility) described in our 18th Revision.

25X1

Svobodnyy Complex

[redacted] an apparent missile approximately 95 feet in length is erected on the left pad at Launch Site C(2) at Svobodnyy, a Type IIB site firmly associated with the SS-7 missile system (Figure 28). A review of

25X1

previous photography of this launch site reveals that a similar "missile" has been erected on this pad on each coverage since [redacted] The constant appearance of a "missile" on this pad suggests that it fulfills some training function.

25X1

TYURATAM MISSILE TEST CENTER

Test Range Facilities

The Tyuratam Missile Test Center (Figure 25X1 [redacted] coverages included the identification of a new probable rail-served soft launch pad, designated pad A4; the completion of Launch Site G8/G9(19); confirmation that Launch Site B3(17) is a soft launch facility; the identification of a second probable launch pad at Launch Complex J; the observation of missiles and missile components at a number of the sites comprising Launch Complex G; and identification of new construction activity approximately 6 nm west of Launch Complex D.

25X1 [redacted] coverage of Launch Complex A revealed a new completed launch pad, designated Pad A4, approximately 400 feet east of Pad A2 (Figure 30). Construction activity has been observed in this vicinity since 25X1 [redacted] The new launch point consists of a rectangular, rail-served, concrete pad. The right rail serving Pad A2 has been extended through Pad A4, and beyond it approximately 1,000 feet. The center rail serving Pad A2 has been extended, and intersects the right rail at a point beyond Pad A4. We are currently examining this new facility, and the neighboring Pad A2, in an effort to determine its purpose and missile association. We have reached no conclusions to date.

At Pad A1 an association of space vehicle and launch point can be made as the result of [redacted] which passed over and photographed Tyuratam at 0810Z hours on [redacted] 25X1 25X1 25X1 [redacted] Cosmos 68, a probable reconnaissance satellite, was launched at 0943Z on [redacted] 25X1 hour and 33 minutes after the photography was obtained. The only significant activity visible at the rangehead was at Launch Complex A, where a structure approximately 60 feet high was positioned 130 to 150 feet to the rear of the launch tower at Pad A1. A linear object approximately 80 feet long was positioned on the central rail spur between the launch tower and the movable structure. While further definition is not possible because of the poor quality of the photography, it appears virtually certain that this activity was related to the launch of Cosmos 68.

The Type IIIC prototype launch group formed by Launch Sites A3(15), B2(16), and I(14) appears to be nearing completion (Figure 31). The "brick and mortar" phase at all 3 sites appears to be complete, with equipment installation and checkout underway. All 3 silo doors appear identical to those at the older Type IIIA sites. At Launch Site I(14), there appear to be small, open, silo-like structures at the extremities and intersection of the segments of the L-shaped interferometer. The control bunker has been backfilled, but is not yet earth covered. Construction at the probable Type IIIC prototype launch group formed by Launch Sites G7(18) and K1/K2(13) is continuing (Figure 32), but at a slower pace than the group formed by Launch Sites A3(15), B2(16), and I(14). None of the silos appears to be up to ground level. At Launch Site G7(18), the control bunker has been partly backfilled and small silo-like structures are evident at the extremities and intersection of the segments of the L-shaped electronic facility.

At Launch Complex B, construction continues in the area 1,000 feet east of Launch Site B1(2). The area (Figure 33) now consists of 4 buildings. Three of the buildings still are

under construction, including 1 clerestory building approximately 270 feet in length. Launch Site B3(17) can now be confirmed as a soft launch facility, possibly associated with the Soviet space, rather than missile, program.

Few significant developments have taken place at Launch Complexes C(3), D(4, 9), E(6), F(5) and H(8) since our latest revision. At Launch Complex C(3), 2 missile RIM buildings are under construction approximately 1 nm west of Pad C1. Similar pairs of buildings have been constructed at the support facility west of Complex D and at the support facility southeast of Complex F. At Launch Complex F(5), the segments of the electronic facility remain unearthed. An area of new construction activity is identified approximately 6 nm west of Launch Complex D(4, 9), and south of the complex main road (Figure 34). It consists of a roughly square, double-fenced area containing several small probable buildings, considerable track activity, and ground scarring. This activity can be negated on [redacted] and is first visible on [redacted] Launch Complex G, covered [redacted] was very active. At Launch Site G1/G2(7), a missile approximately [redacted] high is erected on Pad G2 (Figure 35). The second-stage diameter appears smaller than that of the first stage. Preliminary analysis indicates that the first-stage length [redacted] is probably similar to the first stage (about 50 feet) of a 115-foot 3-stage liquid propellant vehicle paraded in Moscow in May 1965 (Figure 36). The stepped second stage of the missile on Pad G2 does not appear the same as the second stage of the parade vehicle. Further analysis of both these vehicles is continuing. A detailed look at the 2 service gantries at Launch Site G1/G2(7) is also provided for the first time on [redacted] Six service platforms are visible at each gantry; the upper 5 appear evenly spaced, but there is a somewhat larger separation between the 2 lowest platforms. Also clearly visible are 4 towers, 2 at each pad, which probably support television monitors, lightning rods, and possible lighting for nighttime operations.

Probable missile components are also visible at Launch Site G3/G4(11), where the gantry is on Pad G4 (Figure 37). Darkness and shadow obscure objects within the gantry, but it appears to contain a center or "core" component approximately 80 feet high and [redacted] in diameter, with 3 cylindrical objects, each about [redacted] clustered at its base. It appears from the arrangement visible that other components will be added to the cluster. At this time no firm comparison can be made between these components and the vehicle seen near Pad G4 on [redacted] [redacted] (Figure 38). Mensuration of that vehicle indicated a first stage about [redacted] in length, an overall length of [redacted] and first- and second-stage diameters of [redacted] feet, respectively. It cannot be determined conclusively that the first stage of the vehicle observed in [redacted] is clustered. If it is related to the vehicle observed in [redacted] we must assume that it has additional components yet to be assembled. We believe that Launch Site G3/G4(11) is designed primarily for development and testing of space vehicles, but also recognize that the payload capabilities of such vehicles could have an ICBM application if the Soviets so desired.

At Launch Site G5/G6(12), the gantry is positioned on Pad G5 (Figure 39). An unidentified piece of equipment, approximately 75 feet long overall, and 4 smaller vehicles are also parked on the pad. In addition, a cylindrical object approximately 60 feet high is erected on Pad G6. A possible transporter, approximately 95 feet long overall, is parked approximately 500 feet southeast of Pad G6. Significantly, identical

equipment is apparent at Launch Site G8/G9(19) (Figure 40). A transporter approximately 95 feet long overall, carrying a cylinder approximately 60 feet long, is positioned on the apron at Pad G9. A piece of equipment approximately 75 feet long is nearby.

25X1 The object erected on Pad G6 is about [redacted] in diameter, and appears to be a cannister or container rather than a missile or missile component. This cylinder could be the container for an ICBM requiring environmental control because of the nature of its propellants. That would explain, at least partly, the relatively large and bulky gantry at Launch Site G5/G6(12) associated with an apparently small missile. Details of the lower portion of the erected cylinder are not sufficient to indicate whether or not a missile is launched from the container. The fact that the gantry has been removed suggests that the cylinder is in place during launch. If this is true, the cylinder could represent a silo liner of some type being used aboveground in a soft R&D development program.

All these factors lend credence to the theory that Launch Site G5/G6(12) may be the soft R&D launch facility for a new small ICBM, with Launch Site G8/G9(19) the hardened counterpart. Whether there will be field deployment of the Launch Site G8/G9(19) configuration, or whether the deployed Type IIID sites actually represent only minor variations of Launch Site G8/G9(19), is not yet clear. The appearance of the 3-stage solid ICBM in Moscow, the recently initiated test program for an apparent 2-stage liquid ICBM, and the fact that small-dimension silos exist in 2 configurations at Tyuratam, suggest that 2 competitive ICBM programs -- one liquid, one solid -- may be underway.

25X1 Photography of the launch sites at Launch Complex G on [redacted] revealed that the missiles/components observed [redacted] were no longer present. An analysis of flight activity at Tyuratam during the period [redacted] shows only the lunar probe on [redacted] and the Cosmos 68 launch shortly after the [redacted] Neither of these can be associated with Launch Complex G. The [redacted] coverage of Launch Site G8/G9(19) also showed that it is complete and probably operational. This is the first third-generation launch silo to be completed.

25X1 [redacted] Launch Complex J at Tyuratam. Highlight of the [redacted] coverage was the identification of a second large excavation approximately 1,700 feet west-northwest of the first (Figure 41). We believe that the excavations are launch pads and/or static test stands under construction, and have designated the eastern one Pad J1 and the western one Pad J2. The exterior of the massive assembly/checkout building appears to be complete on [redacted] Two parallel scars approximately 60 feet apart (possible gantry tracks under construction) extend northward about 3,000 feet from the assembly/checkout building toward the excavations. The general layout of this area of construction activity is similar to the early stages of construction observed at Launch Site G3/G4(11). Photographic coverage of Launch Complex J on [redacted] showed that construction is continuing at a steady pace.

Launch Site K3(20), probably the hardened R&D facility for the missile system to be employed in Type IIID launch silos, was covered [redacted]. The control bunker has been re-backfilled and the L-shaped electronic facility appears complete (Figure 42). There is unidentified activity, equipment, and a

ring-like object in the immediate vicinity of the silo, but obliquity precludes determination of its construction status.

Expedited construction activity has brought Launch Group L(21-30), begun in to a late stage of construction by Nine of the sites have been completely backfilled, and portions of the level silo accesses on either side of the silos have been paved (Figure 43). At 8 of the sites, the accesses are oriented north-south; at the other 2 launch sites (L2&L3) the orientation is and 280 degrees, respectively. Also of interest is the fact that the L-shaped interferometer under construction at Launch Site L1 is oriented toward the United States, rather than downrange toward Kamchatka and the Pacific Ocean as are all other such electronic facilities at Tyuratam. This appears to connote an operational as well as a training function for this launch group, which we now believe to be the prototype for Type IIID launch groups in the field.

No significant changes have been observed since our latest revision at the main support base, the propellant production plant, or the probable interferometer under construction southwest of the propellant plant. We have again examined the area of unidentified construction activity west of Launch Complex G where an H-shaped building is under construction (see 18th Revision). The purpose of this area is still undetermined. The H-shaped building in the center of the area is smaller than similarly shaped buildings common to Soviet solid-propellant static test facilities. Because of the proximity of this area to the revetted storage area, however, it is suspect for a purpose associated with a solid-propellant system.

Test Range Activity

Flight test activity, heavy throughout tapered off somewhat during the first half of It is interesting to note that 5 of the 8 ICBM launches attempted during the period resulted in failures. This unusual rash of failures probably indicates increased test activity emphasizing new and/or modified systems.

Highlight of the firings was the continued testing of a possible new ICBM first launched from Launch Complex G, probably from Launch Site G5/G6, on A launch of this vehicle on resulted in early inflight failure. it was apparently successfully fired to the Kamchatka Impact Area. Preliminary analysis of this possible new ICBM indicates that it is a 2-stage vehicle utilizing liquid propellants. Also significant from a negative viewpoint is the complete lack of evidence that a flight test program is underway for either of the two 3-stage vehicles paraded in Moscow on

No SS-6 or SS-10 launch operations were identified in the period inclusive. No SS-10 firing has been identified since when it was apparently successfully launched to the Pacific Impact Area. While gaps in Soviet R&D flight test programs are not unusual, the length of time involved in the case of the SS-10 (about 9 months) leads us to suspect that the program is delayed or abandoned.

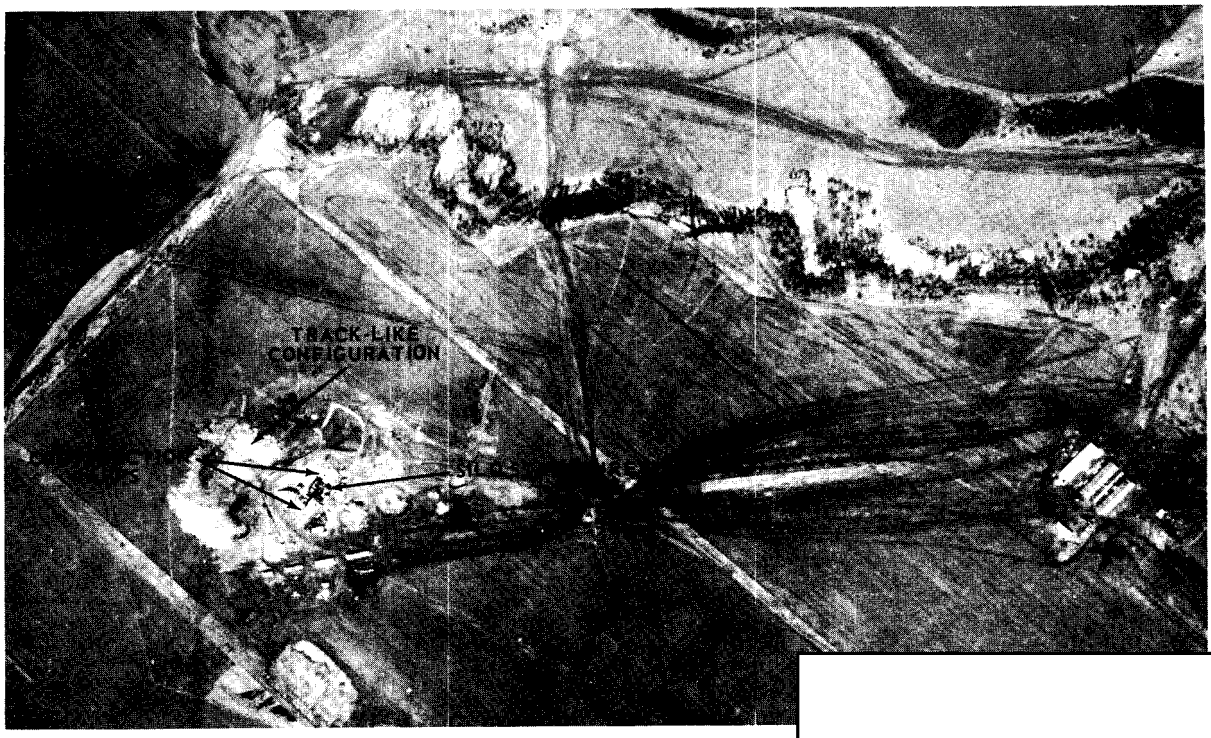
The 4 SS-7 firings to Kamchatka identified during the period apparently involved limited R&D testing and troop training. A firing on represented the first SS-7 launched after 1200Z hours since resulting in reentry in dark-

ness. The absence of reentry telemetry indicated troop training, but an interest in obtaining optical data cannot be excluded. A firing on [redacted] impacted 60 nm beyond the Impact Area when the vernier engines failed to cut off at the proper time. Routine firings of the SS-7 took place on [redacted] This missile system now has been fired some 96 times, with 14 identified failures.

SS-8 activity during the period [redacted] was limited to 1 probable early inflight failure on [redacted] This is the seventeenth failure of this ICBM identified in some 51 firings. Flight testing of the SS-9 continued with heavily instrumented firings to Kamchatka detected on [redacted] It appears that these flights may be associated with the development of a reentry vehicle variant. A probable early inflight failure also occurred on [redacted] the sixth failure of this system in some 22 firings.

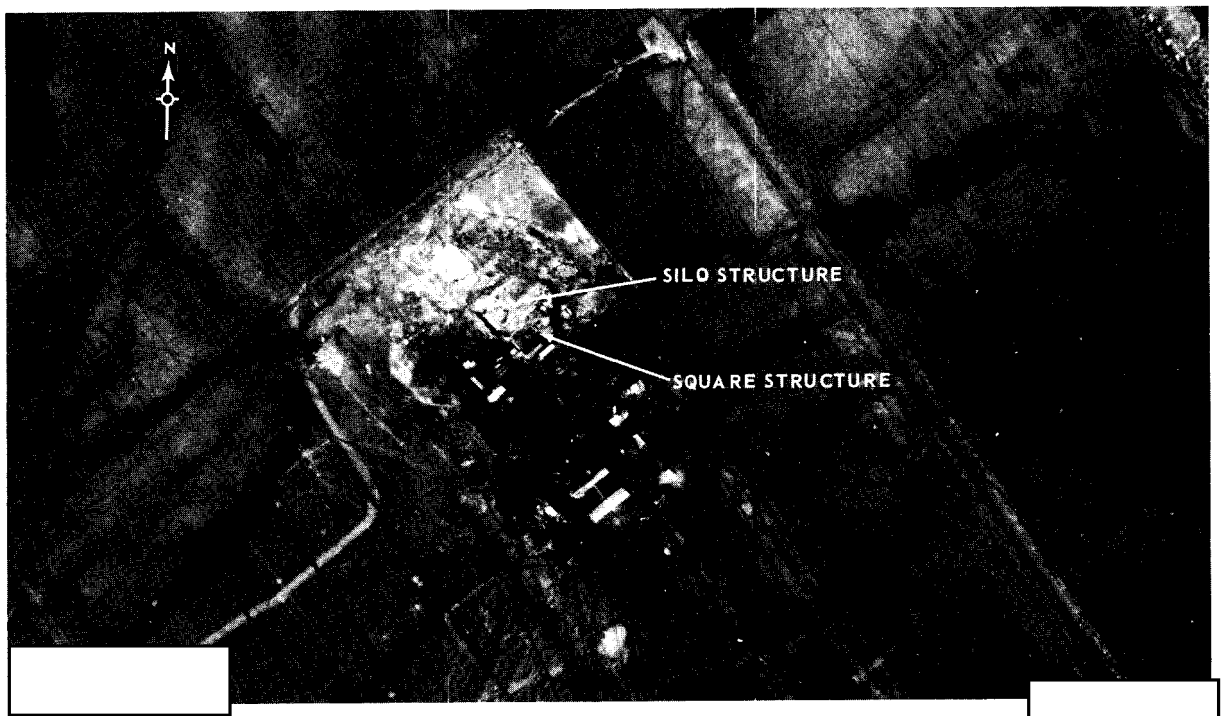
Overall, the Soviets have launched about 243 ICBMs from the Tyuratam Missile Test Center, with approximately 57 detectable failures.

25X1



25X1

FIGURE 3. LAUNCH SITE A(1), ALEYSK ICBM COMPLEX.



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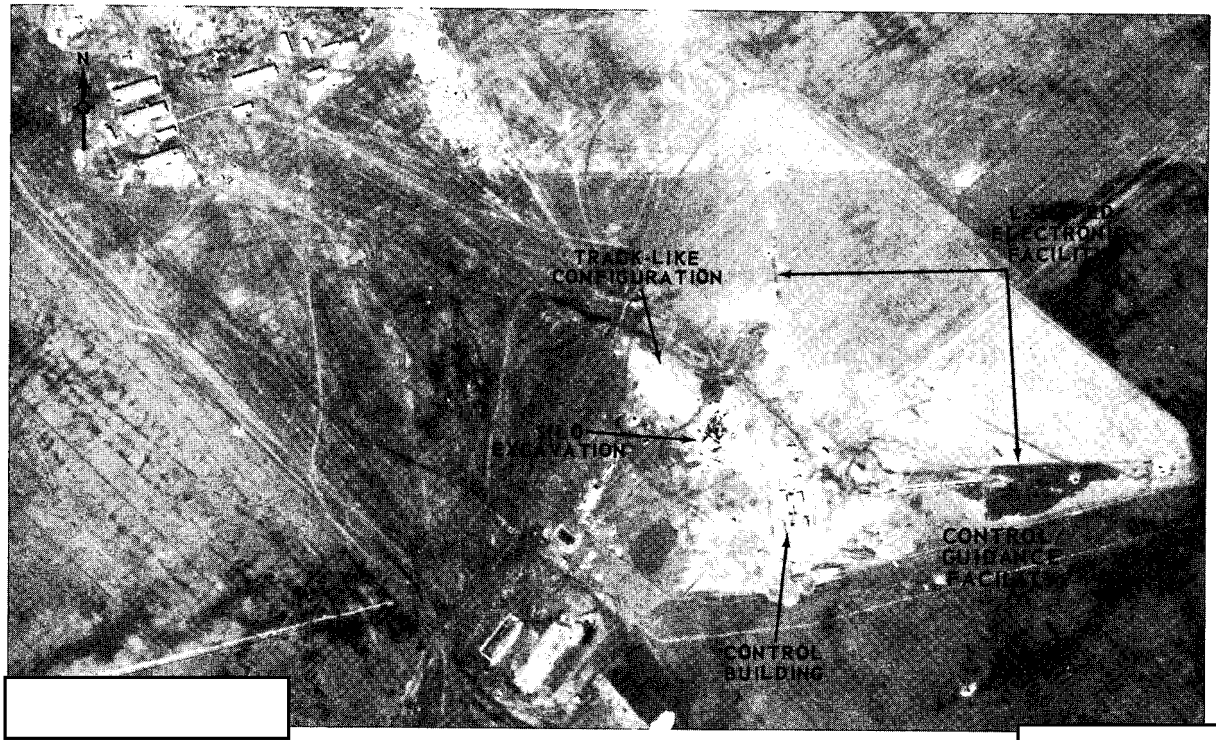
25X1

FIGURE 4. LAUNCH SITE B(2), ALEYSK ICBM COMPLEX.

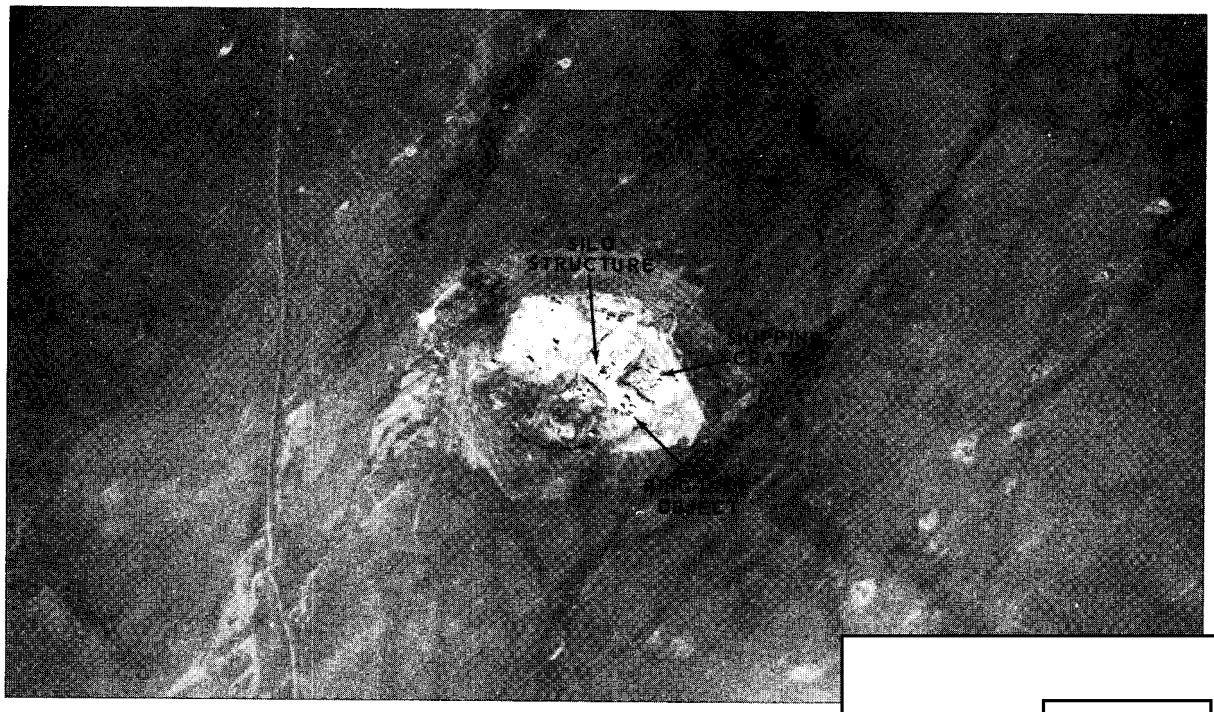
25X1



25X1

FIGURE 5. LAUNCH SITE C(3), ALEYSK ICBM COMPLEX.

25

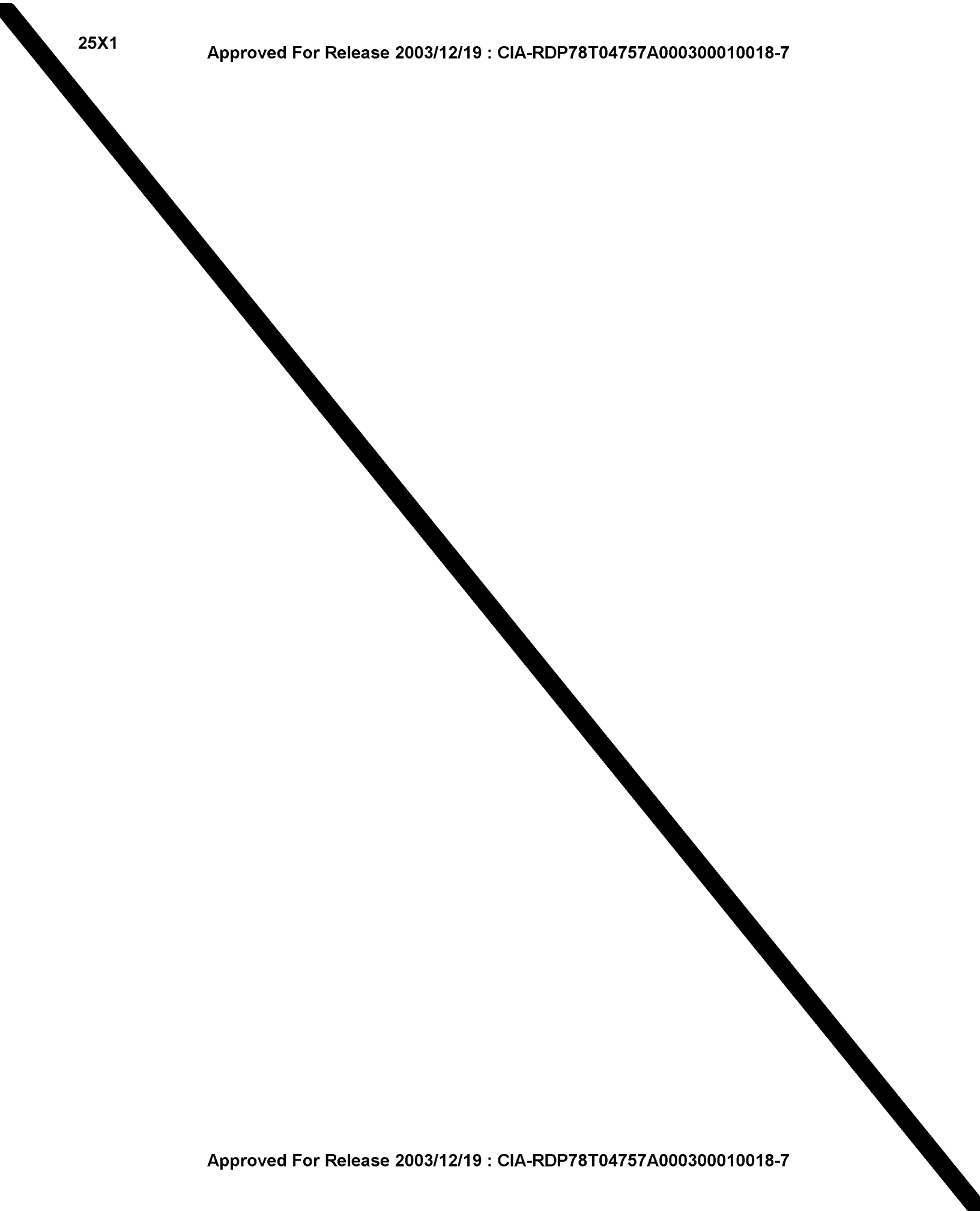


25X1

FIGURE 6. LAUNCH SITE E(5), ALEYSK ICBM COMPLEX.

25

FIGURE 7. LAUNCH SITE F(7), DOMBAROVSKIY ICBM COMPLEX.



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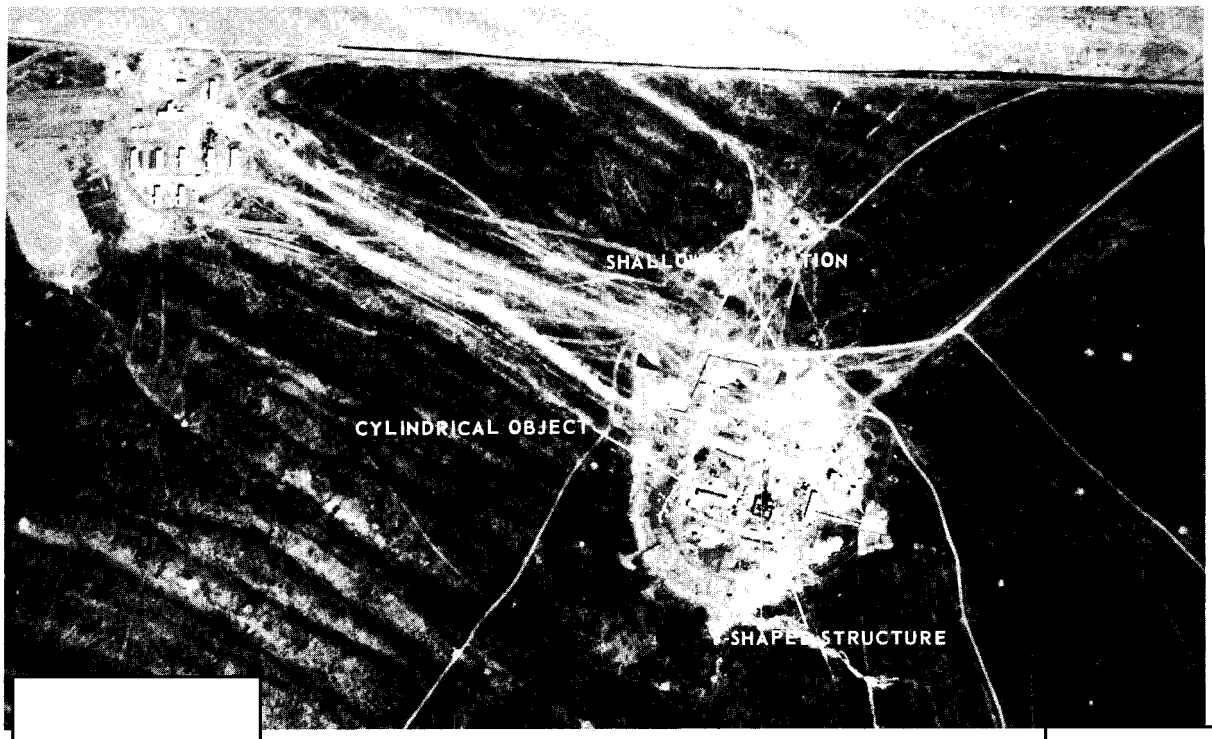
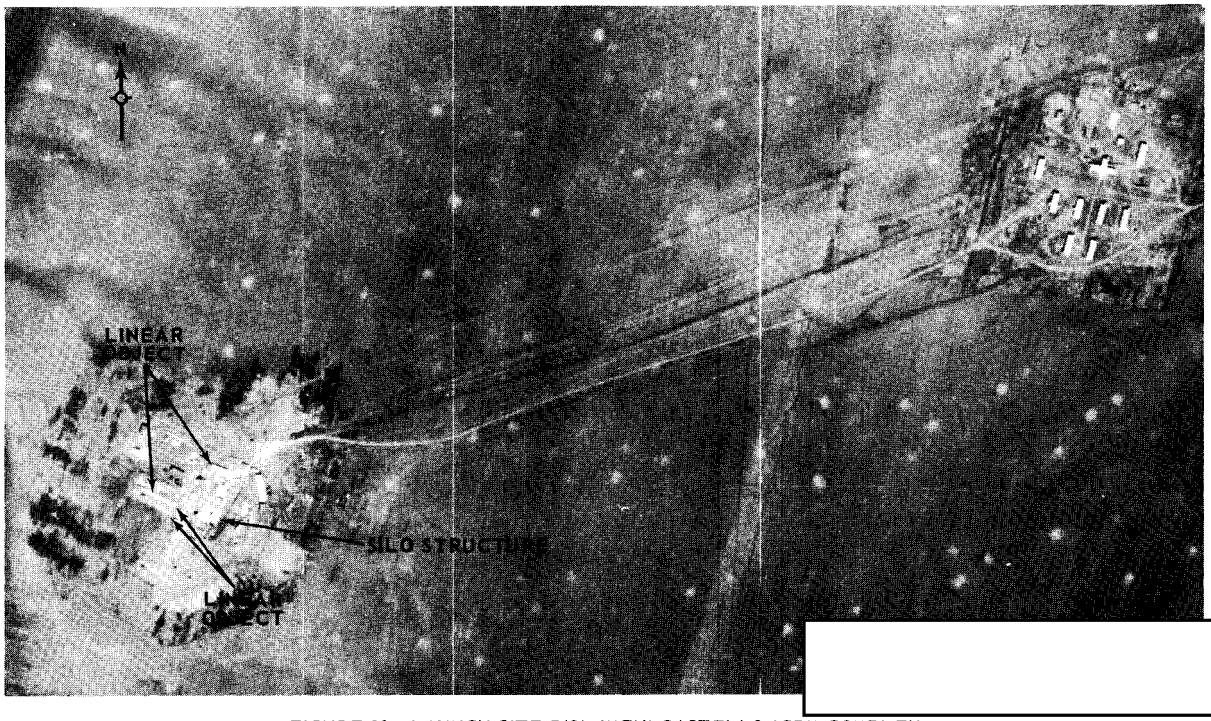


25X1

FIGURE 9. LAUNCH SITE A(1), IMENI GASTELLO ICBM COMPLEX.

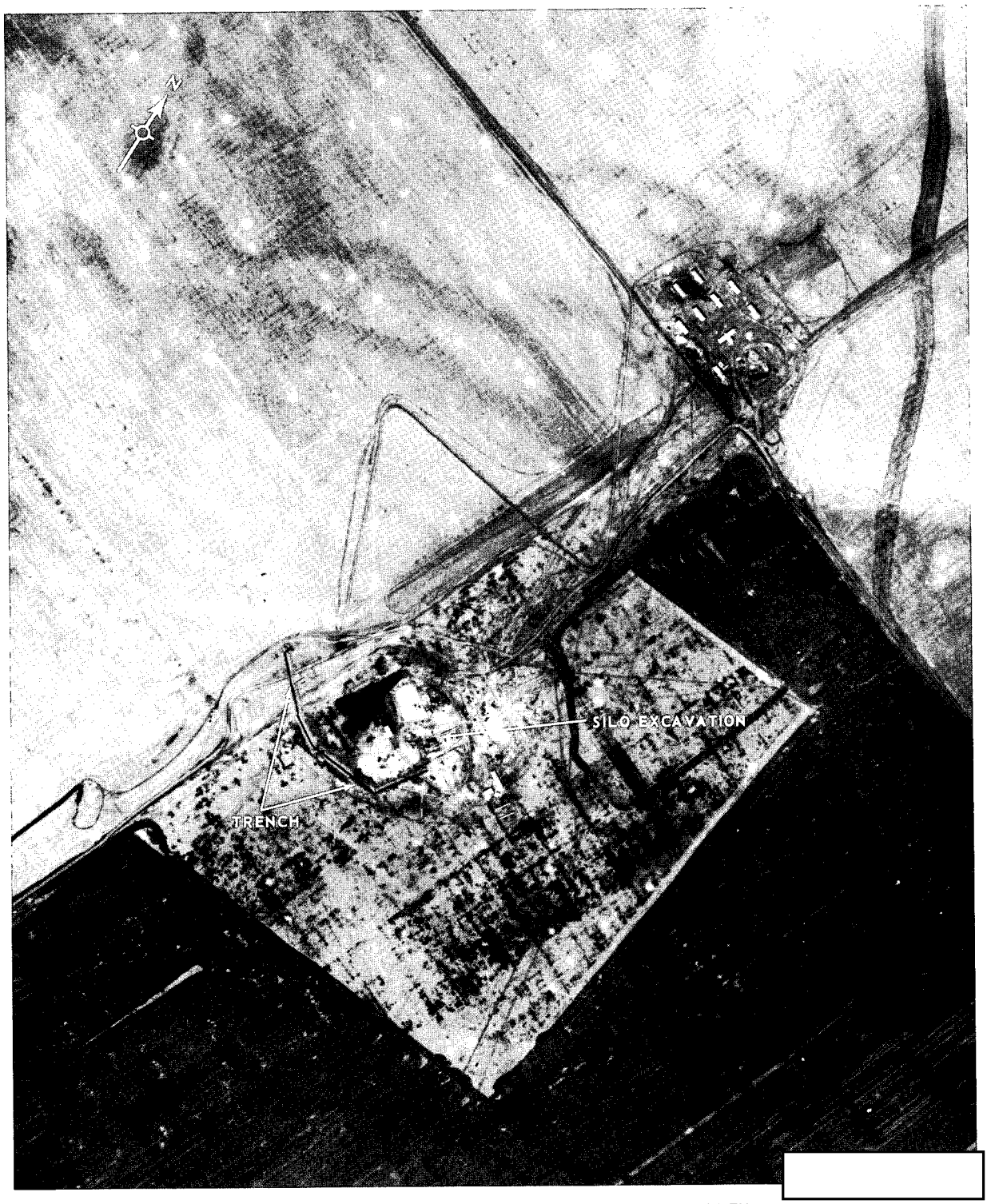
25X



25X1

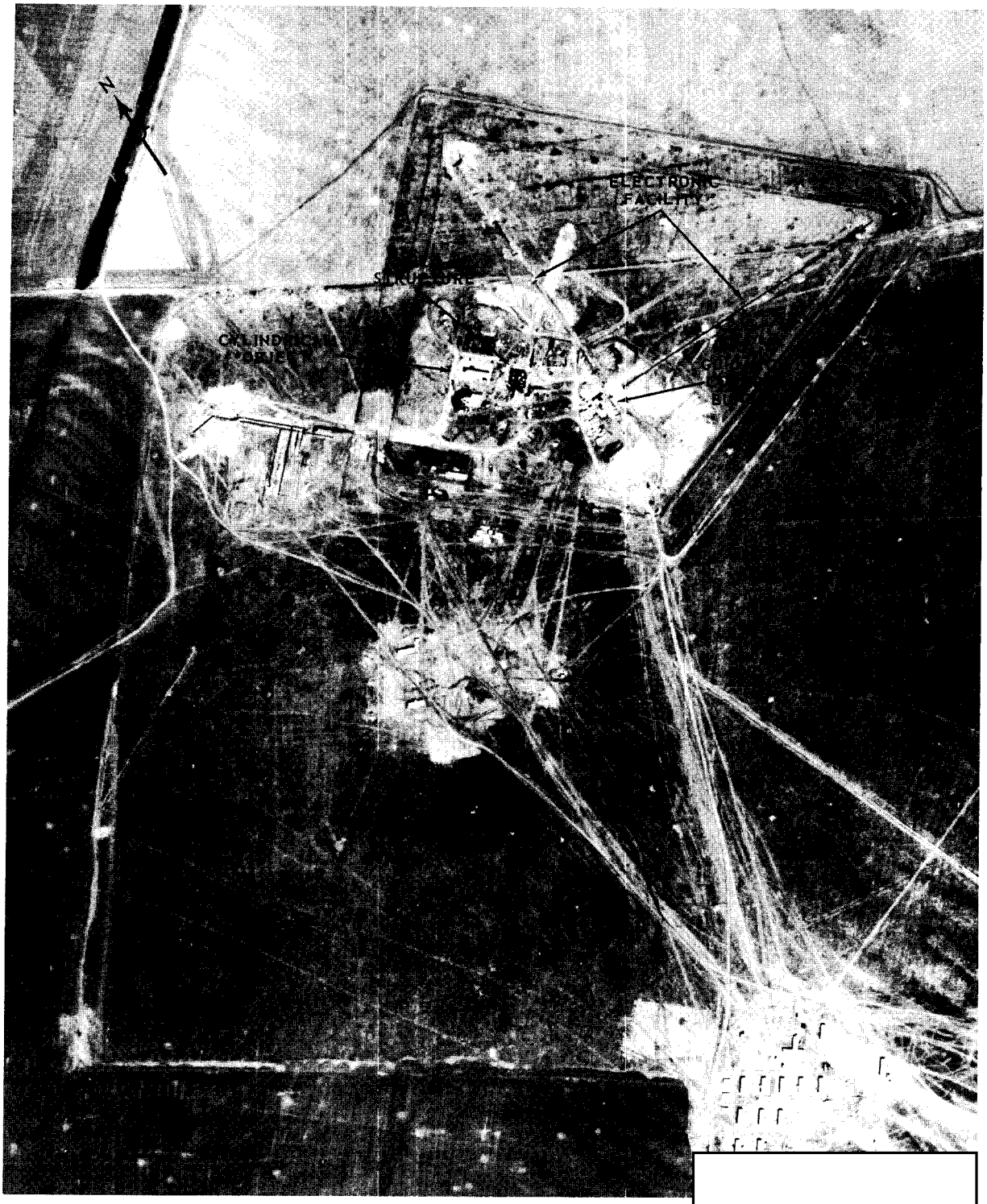
FIGURE 10. LAUNCH SITE B(2), IMENI GASTELLO ICBM COMPLEX.

25X1



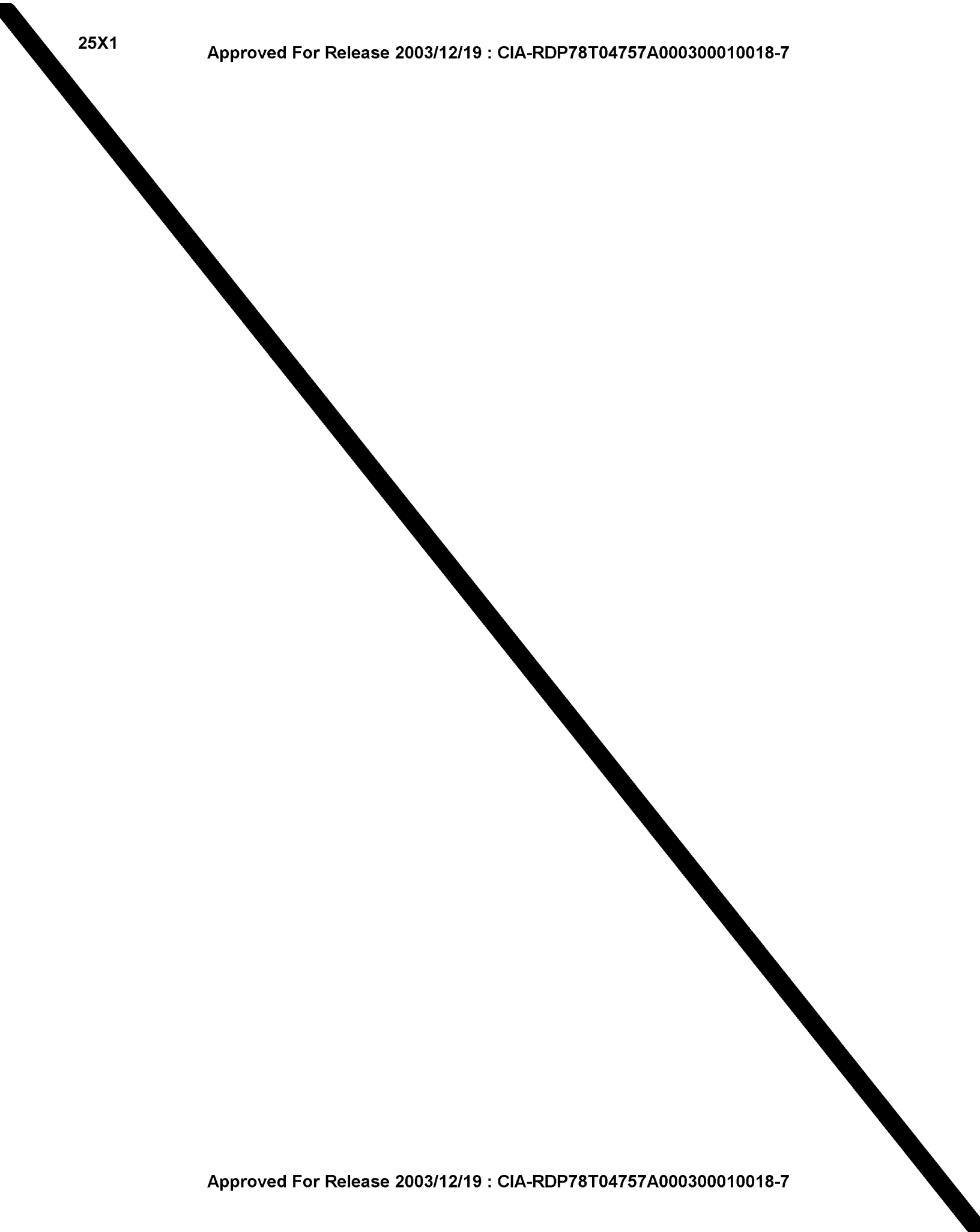
25X1

FIGURE 11. LAUNCH SITE C(3), IMENI GASTELLO ICBM COMPLEX.



25X1 [redacted]

FIGURE 12. LAUNCH SITE D(4), IMENI GASTELLO ICBM COMPLEX.



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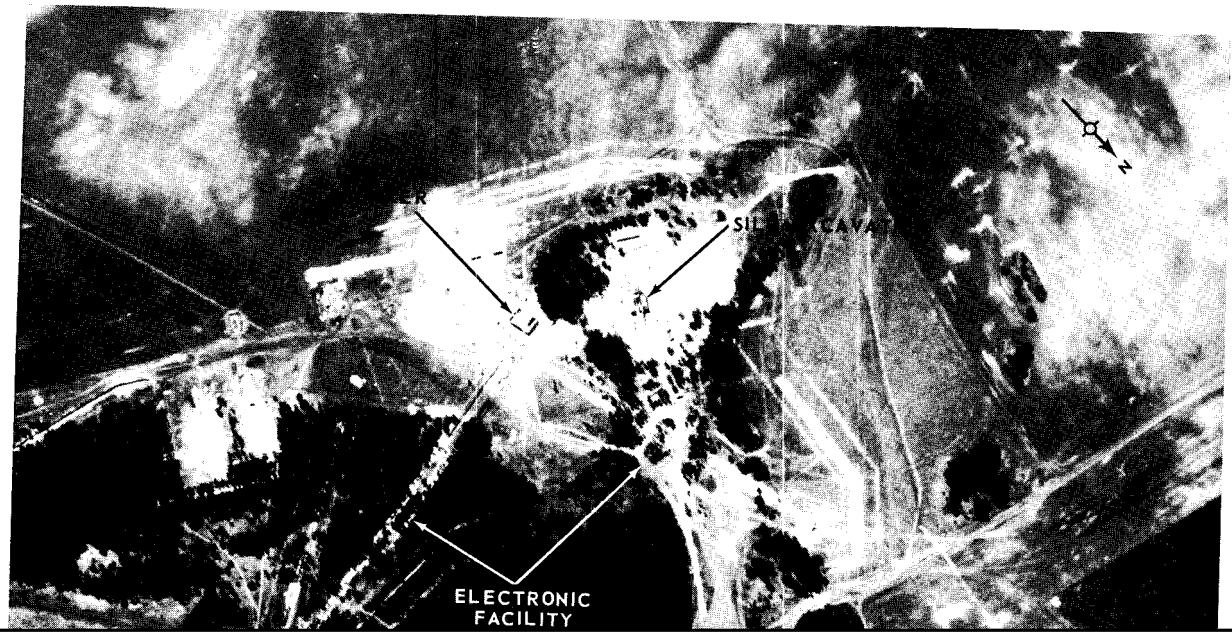
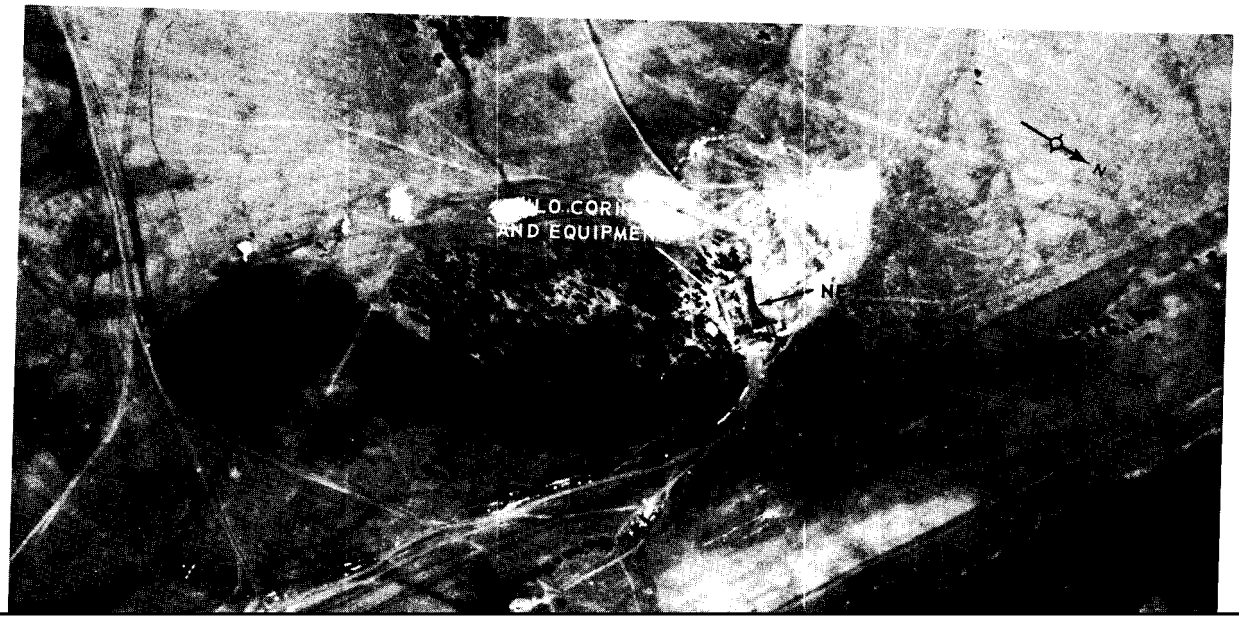
25X1



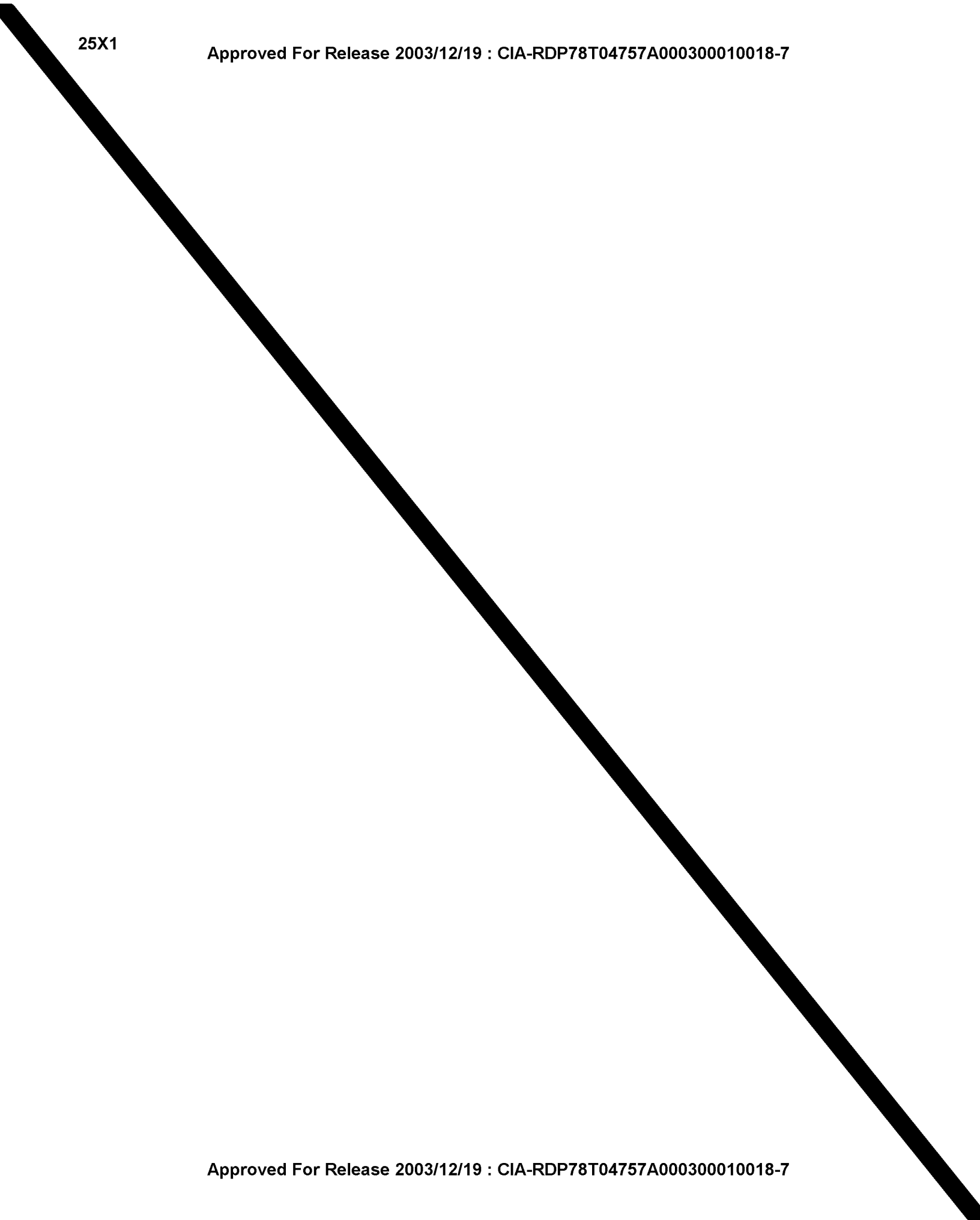
25X1

FIGURE 14. LAUNCH SITE A(1), KARTALY ICBM COMPLEX.



25X1

25X1



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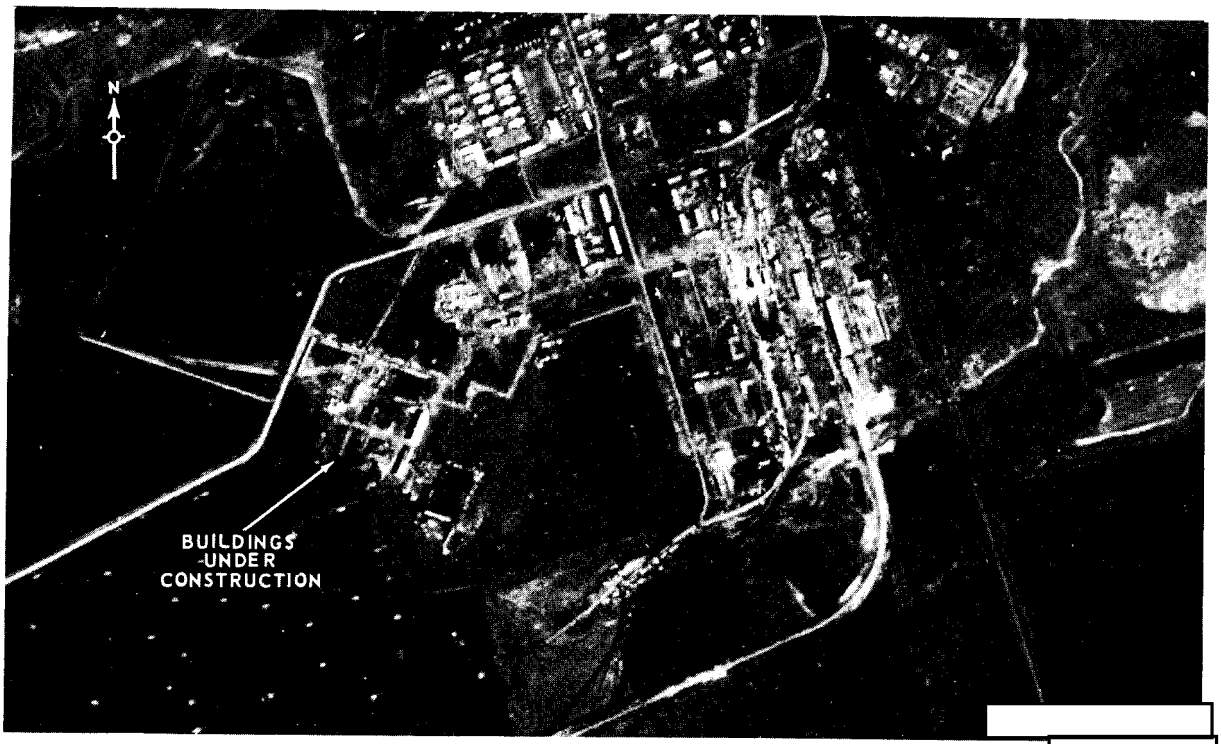
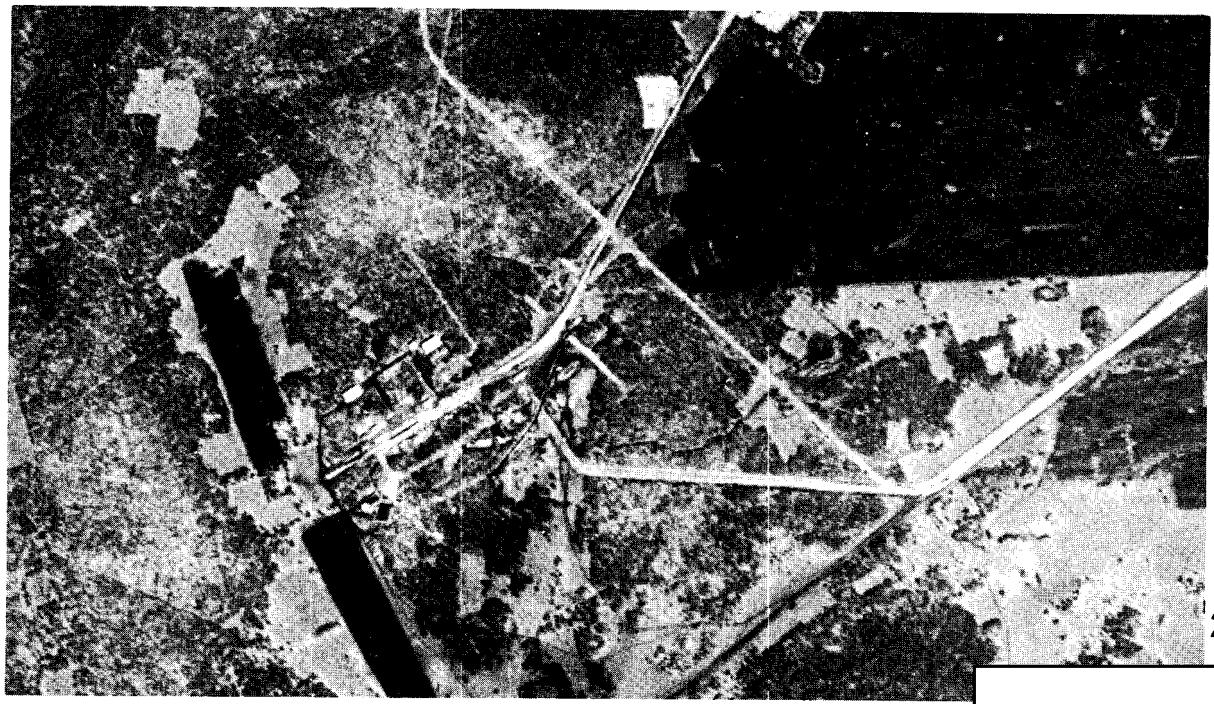


25X1

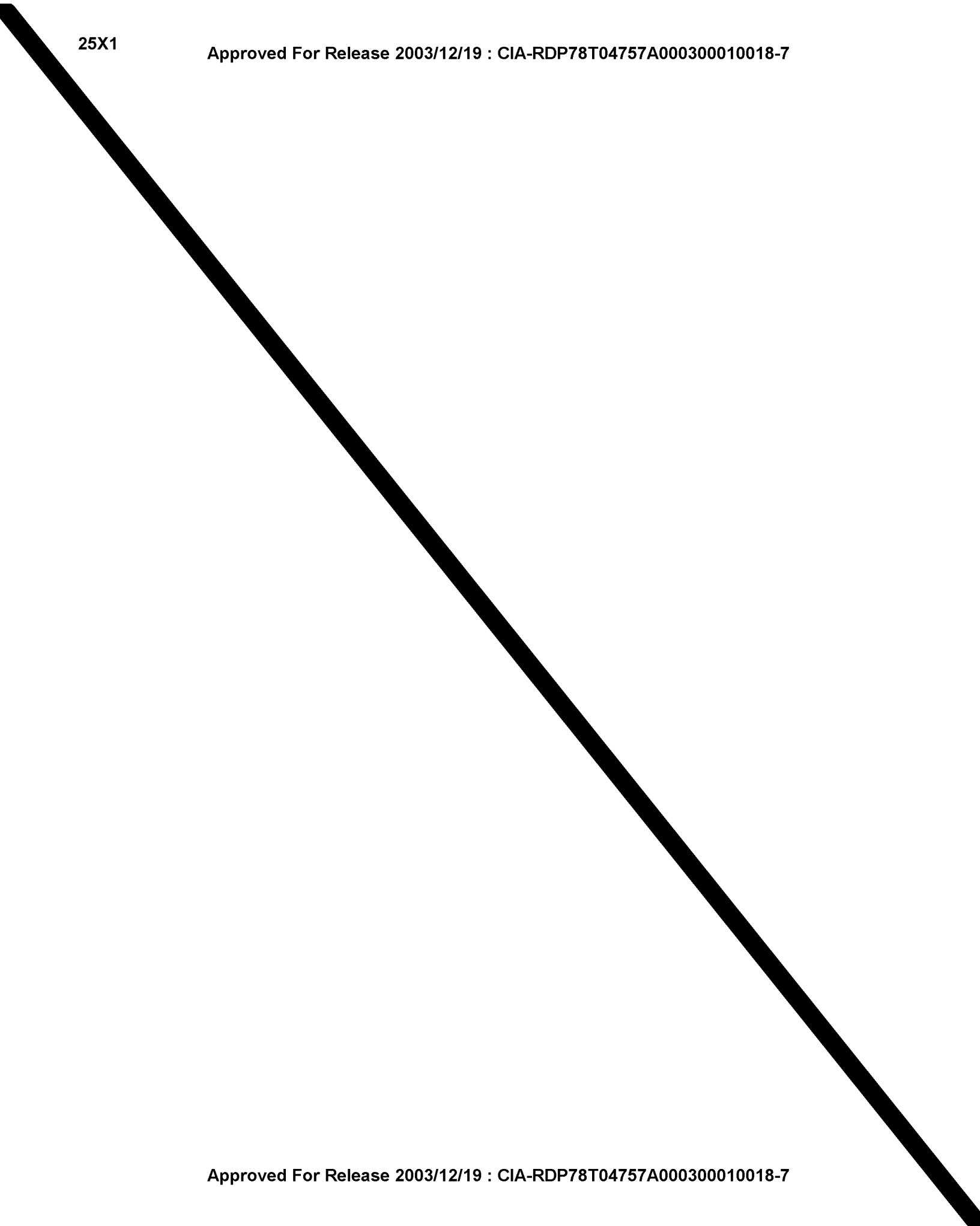
FIGURE 17. COMPLEX SUPPORT FACILITY, UZHUR ICBM COMPLEX.

25X



25X1

FIGURE 18. RAIL-TO-ROAD TRANSFER POINT, UZHUR ICBM COMPLEX.



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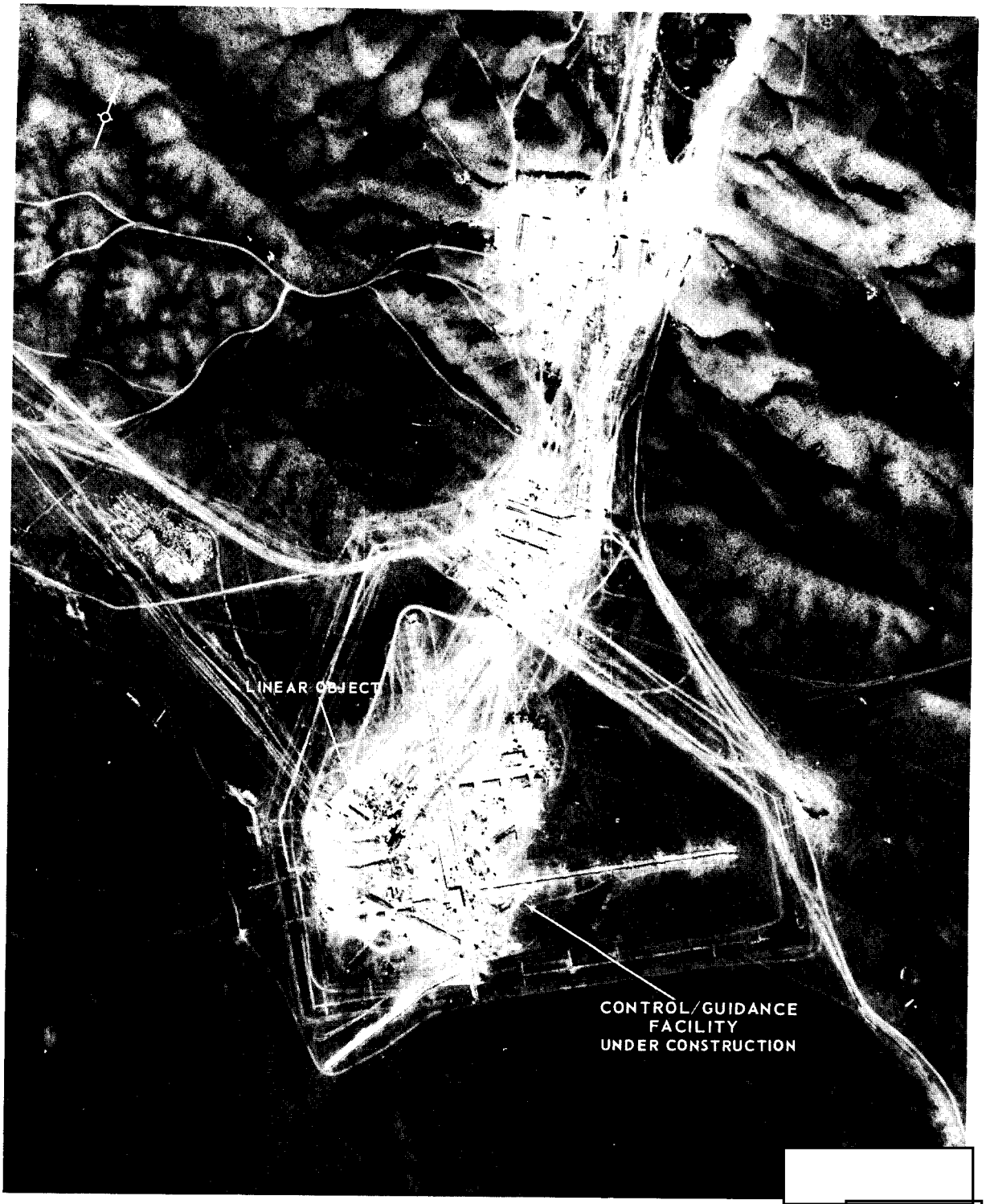


FIGURE 20. LAUNCH SITE A(1), ZHANGIZ-TOBE ICBM COMPLEX.

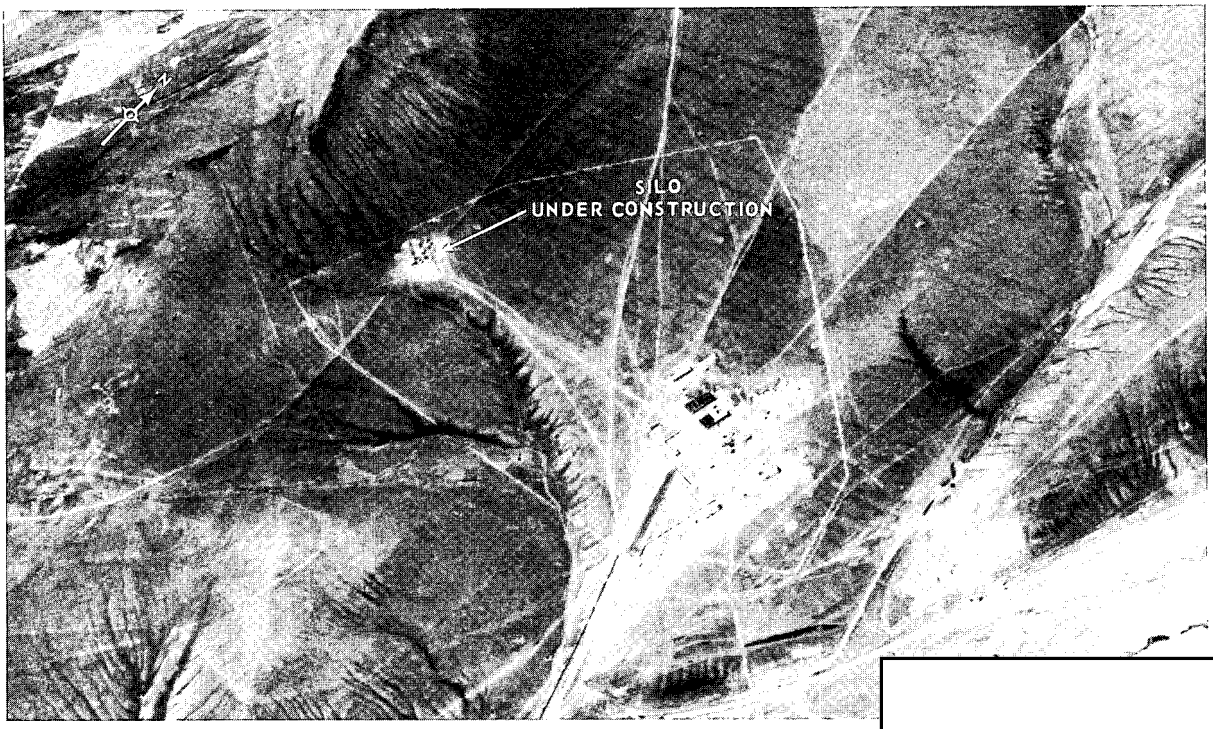


FIGURE 21. LAUNCH SITE F1(24), OLOVYANNAYA ICBM COMPLEX.

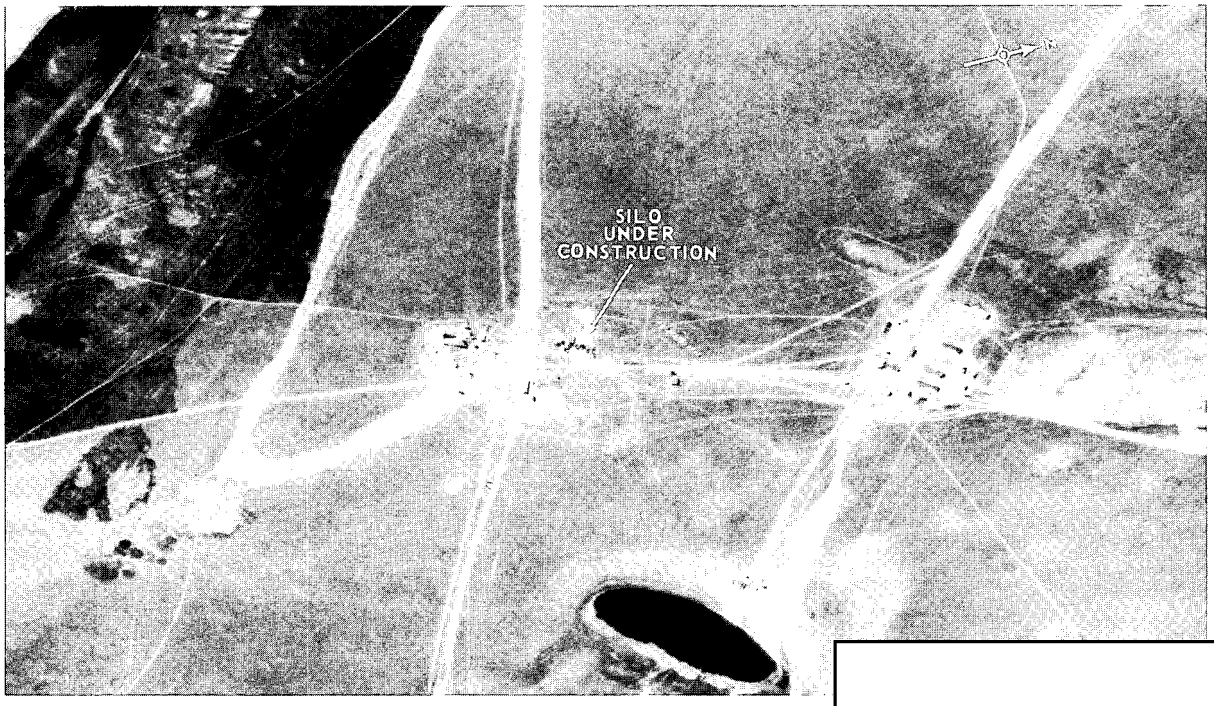


FIGURE 22. LAUNCH SITE G1(25), OLOVYANNAYA ICBM COMPLEX.

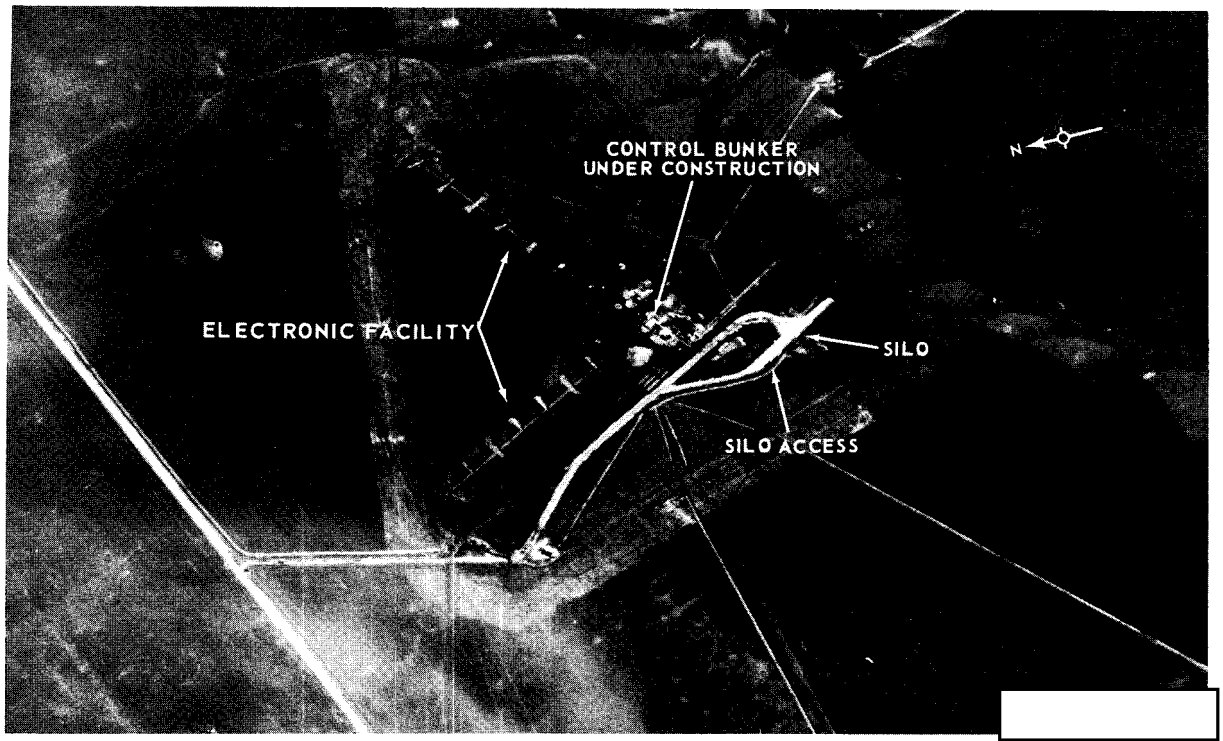


FIGURE 23. LAUNCH SITE A1(1), TATISHCHEVO ICBM COMPLEX.

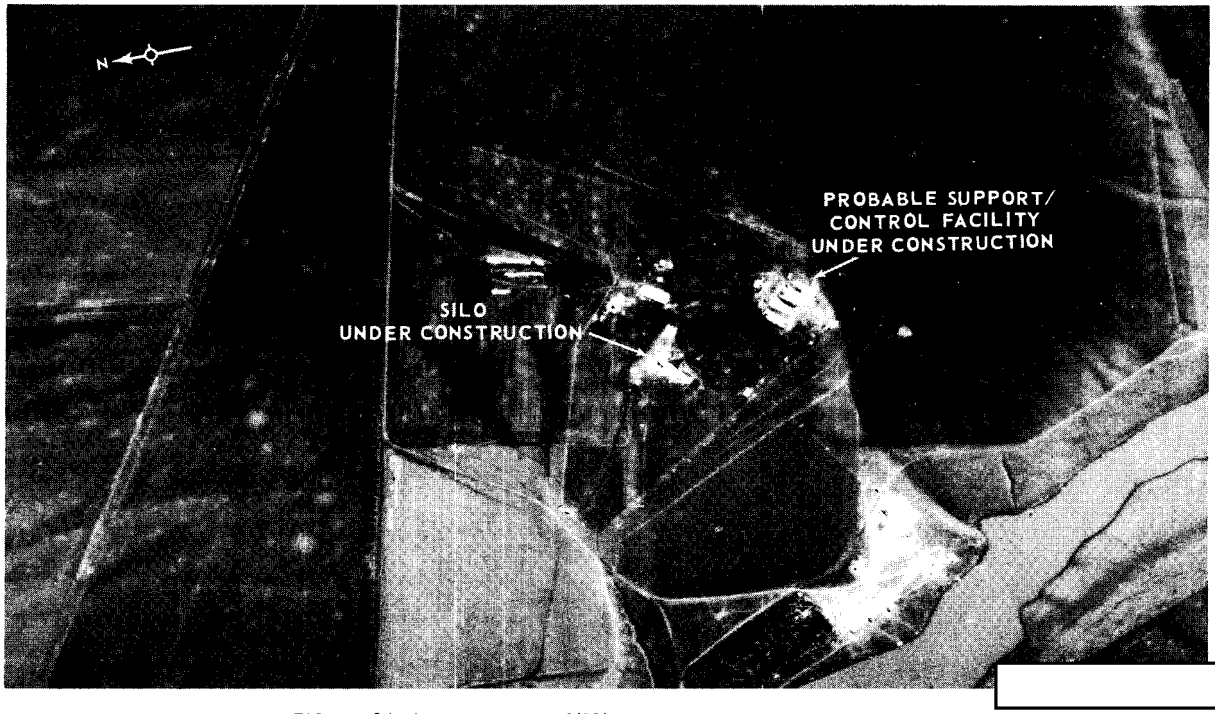


FIGURE 24. LAUNCH SITE B2(13), TATISHCHEVO ICBM COMPLEX.

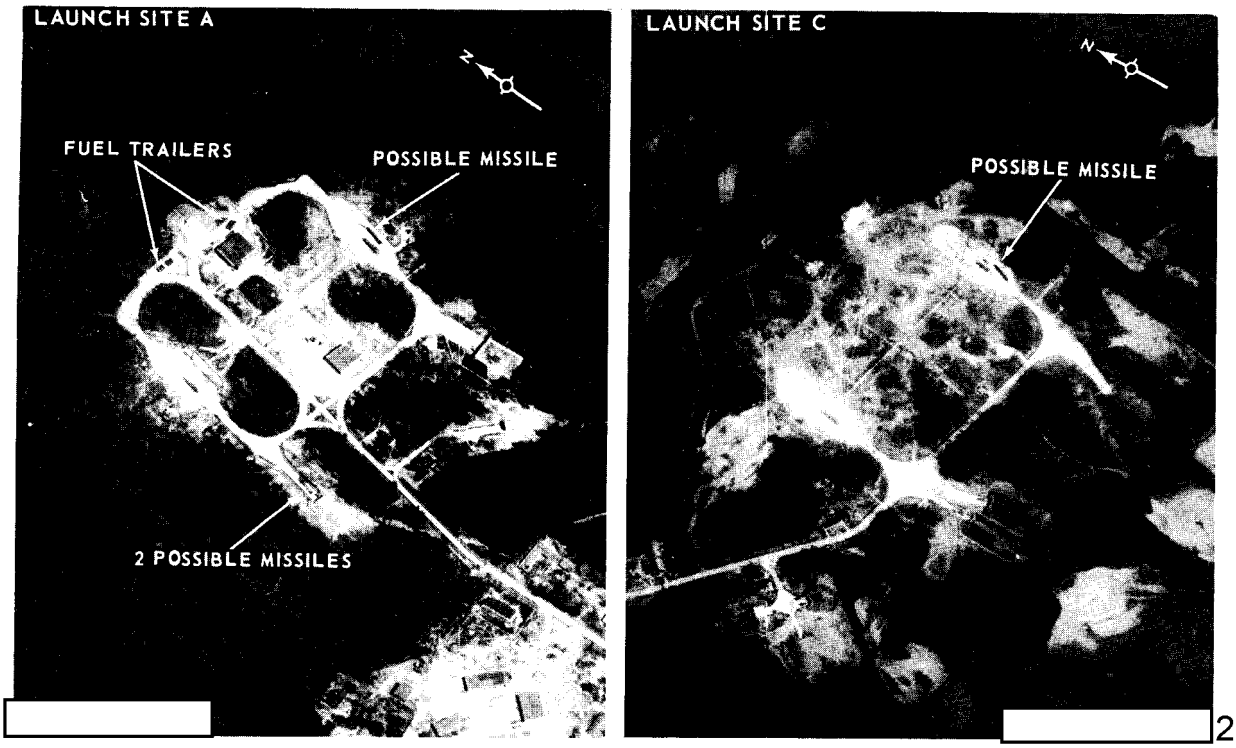
25X1

FIGURE 25. RAIL-TO-ROAD TRANSFER POINT, TATISHCHEVO ICBM COMPLEX.

25X

25X

FIGURE 26. SAVAGE ICBM, MOSCOW PARADE, MAY 1965.



25X1 25X1

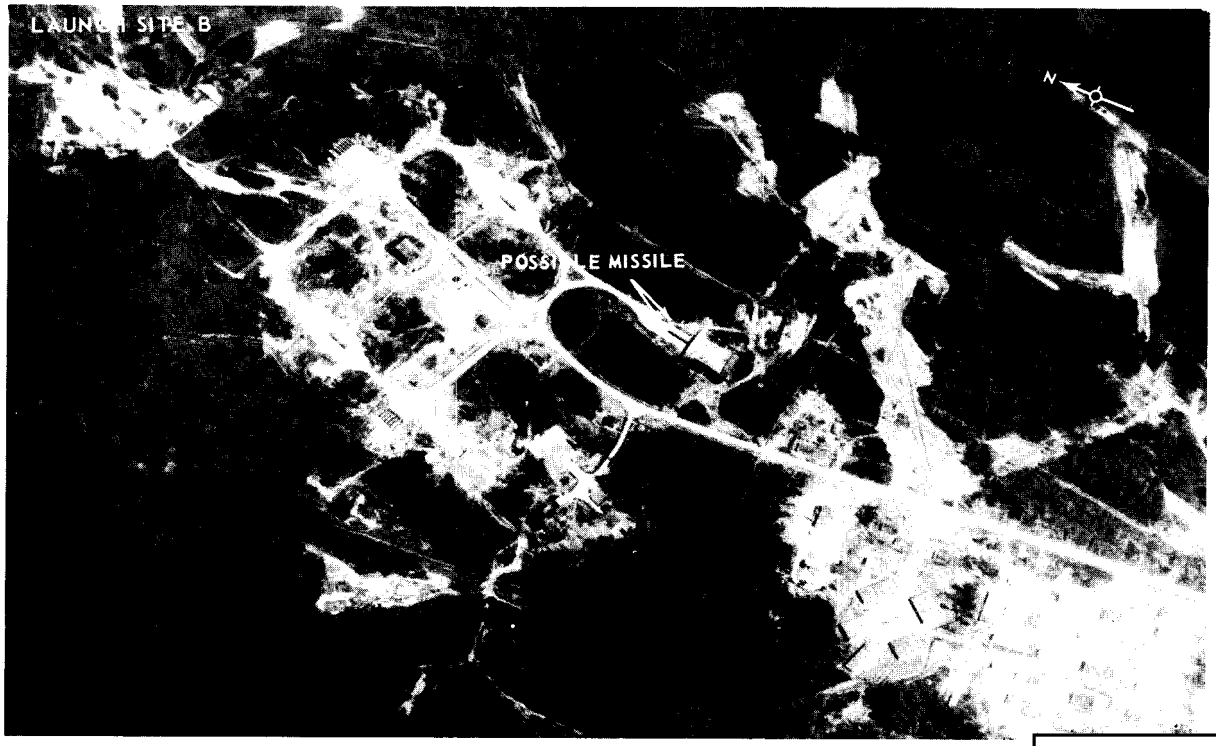
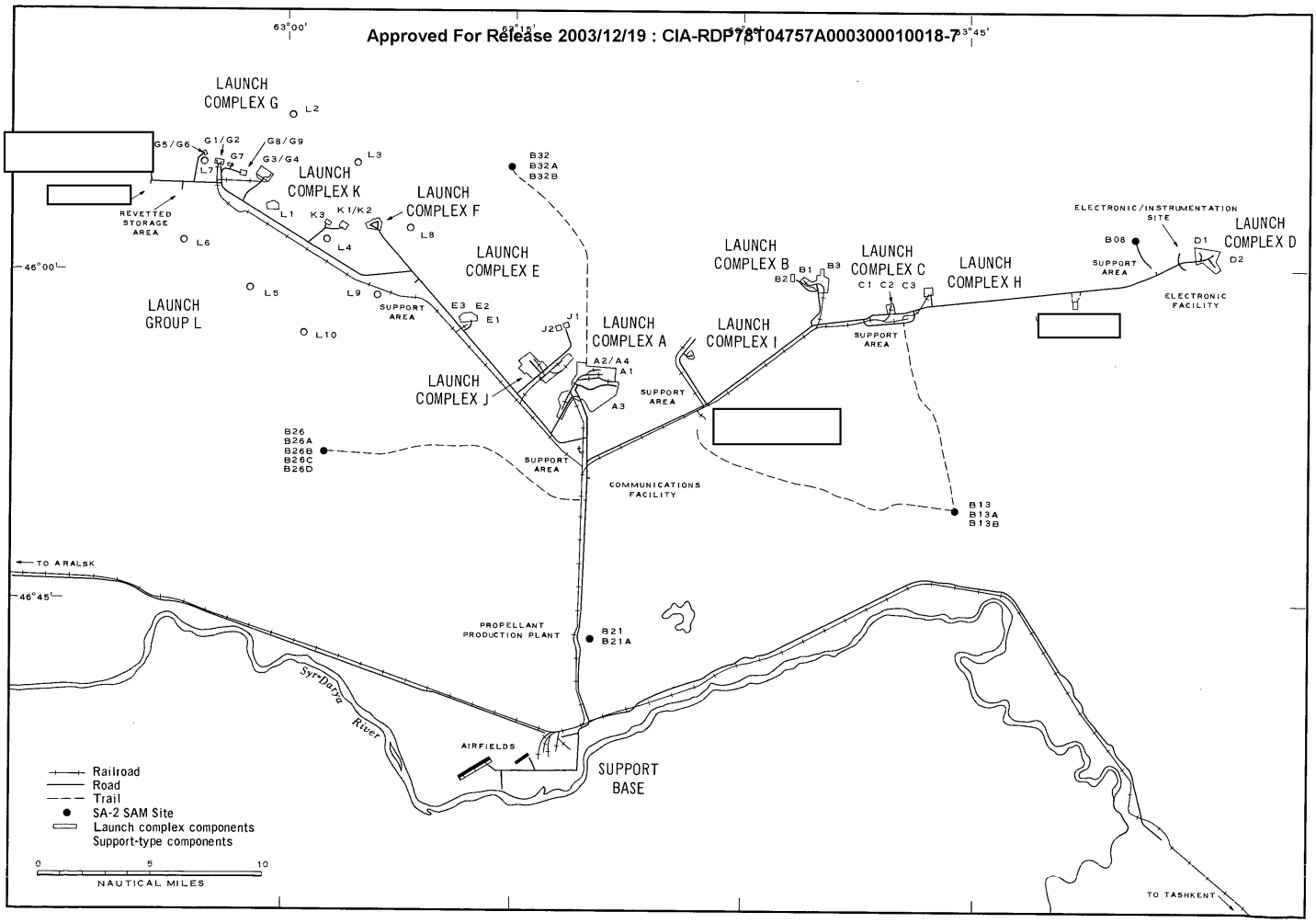


FIGURE 27. LAUNCH SITES A(1), B(2), AND C(3), ITATKA ICBM COMPLEX.

25X

FIGURE 28. LAUNCH SITE C(2), SVOBODNYY ICBM COMPLEX.



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25X1

FIGURE 28. LAUNCH SITE C(2), SVOBODNYY ICBM COMPLEX.

25X1

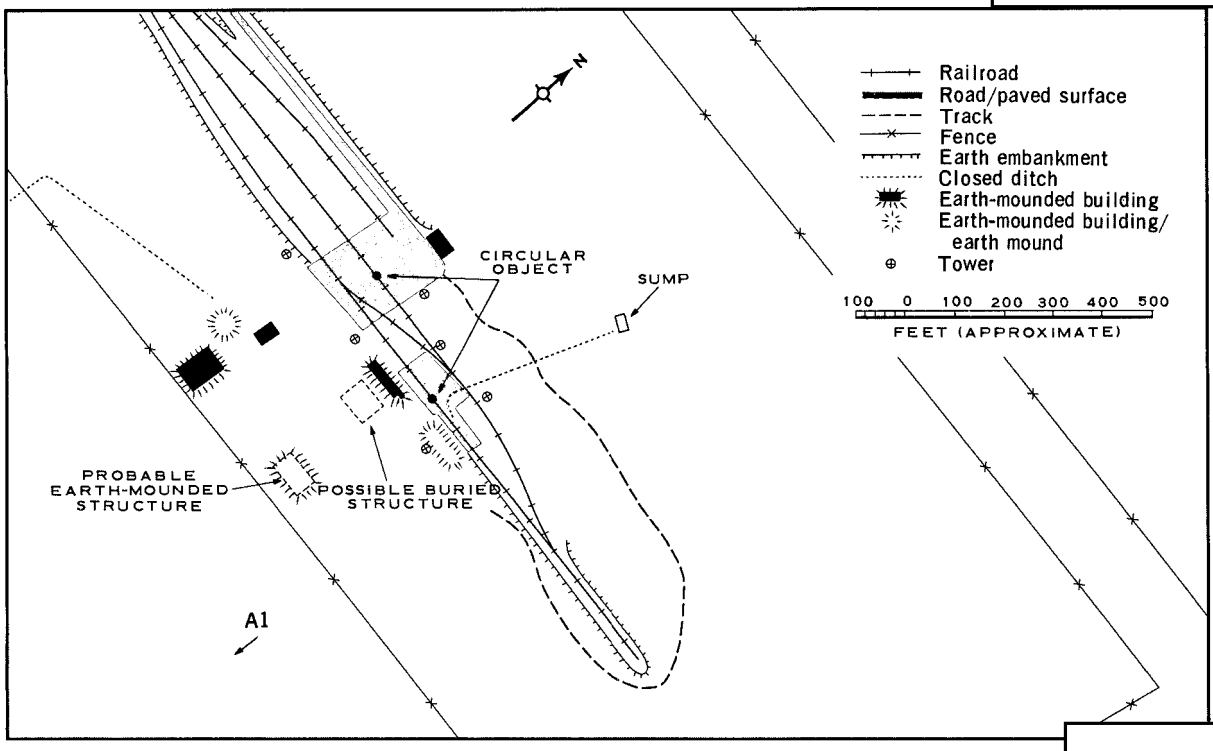
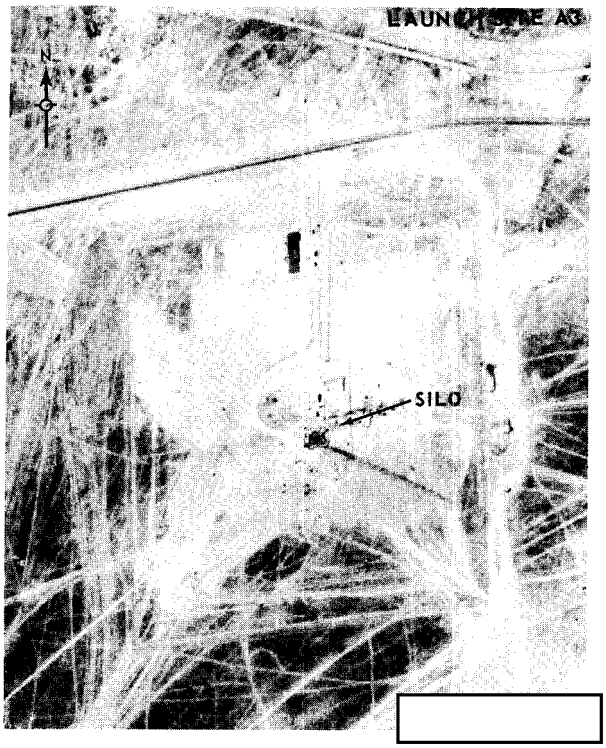
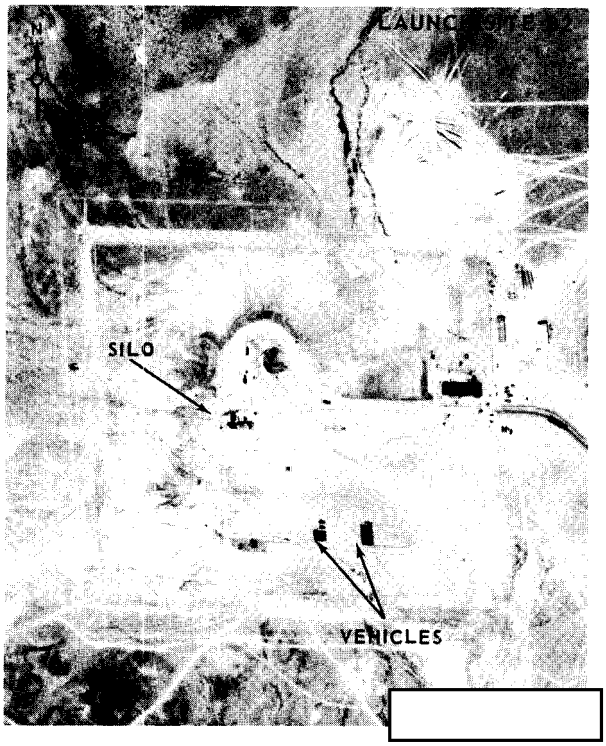
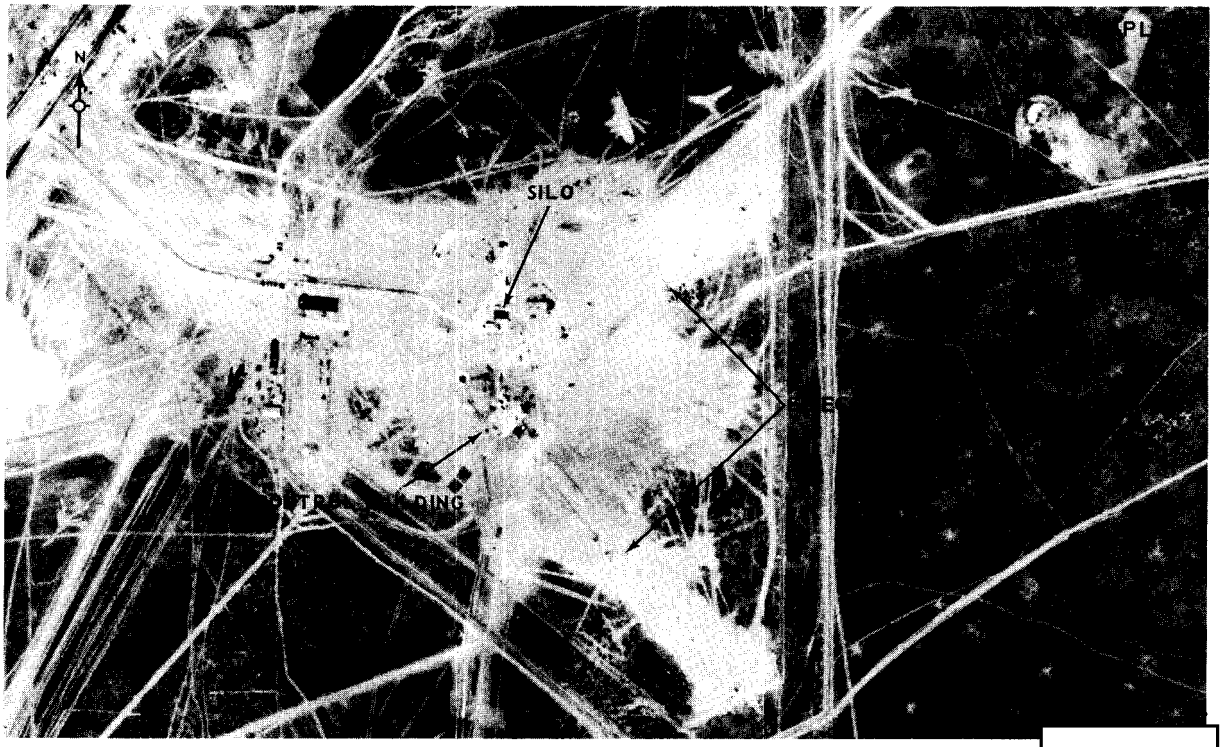


FIGURE 30. LAUNCH SITES A2 AND A4, TYURATAM.





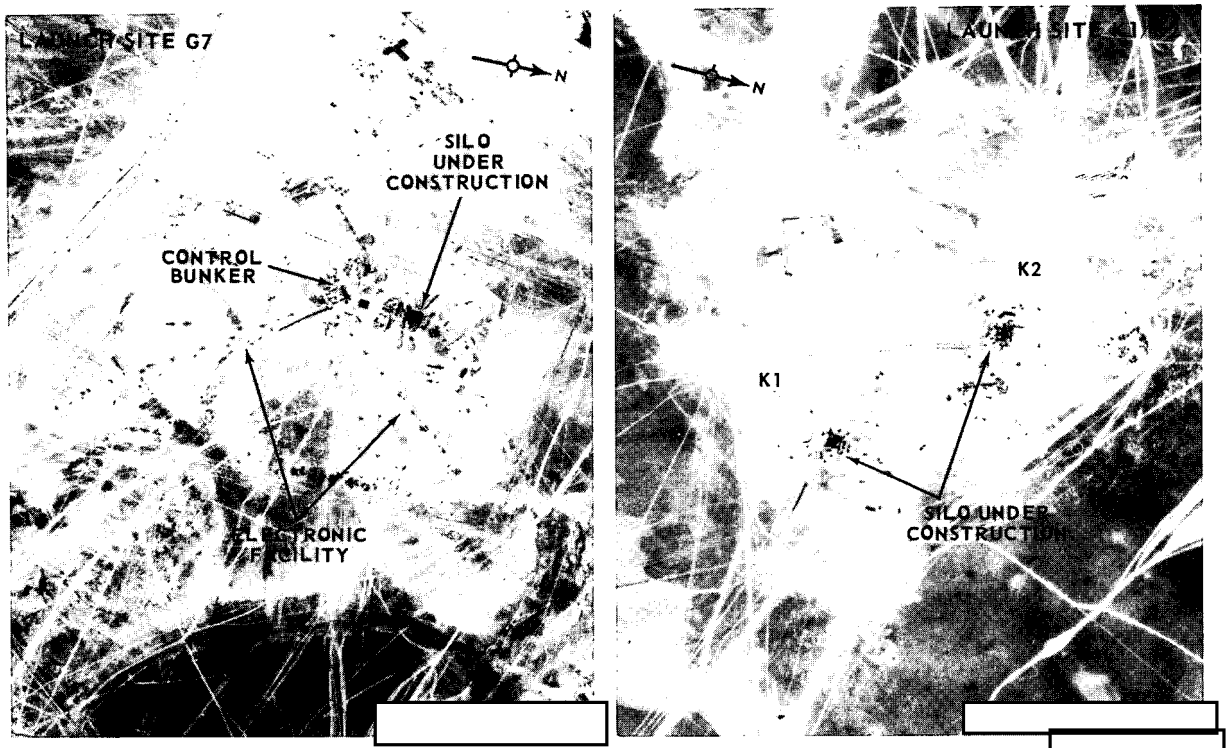
25X1 25X1



25X

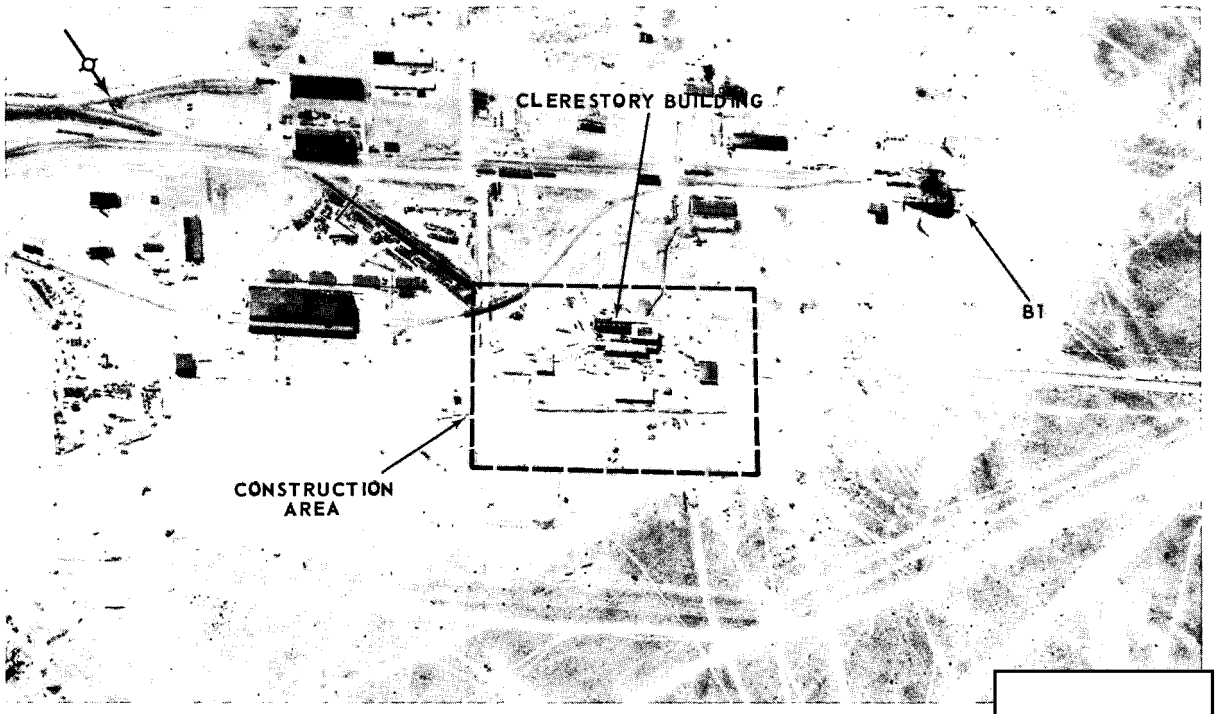
FIGURE 31. LAUNCH SITES A3(15), B2(16), AND I(14), TYURATAM.

25X1



25X1 25X1 25X1

FIGURE 32. LAUNCH SITES G7(18) AND K1/K2(13), TYURATAM.



25X1

FIGURE 33. CONSTRUCTION ACTIVITY EAST OF LAUNCH SITE B1(2), TYURATAM.

25X1

FIGURE 34. CONSTRUCTION ACTIVITY WEST OF LAUNCH COMPLEX D(4, 9), TYURATAM.

25X1

FIGURE 35. LAUNCH SITE G1/G2(7), TYURATAM.

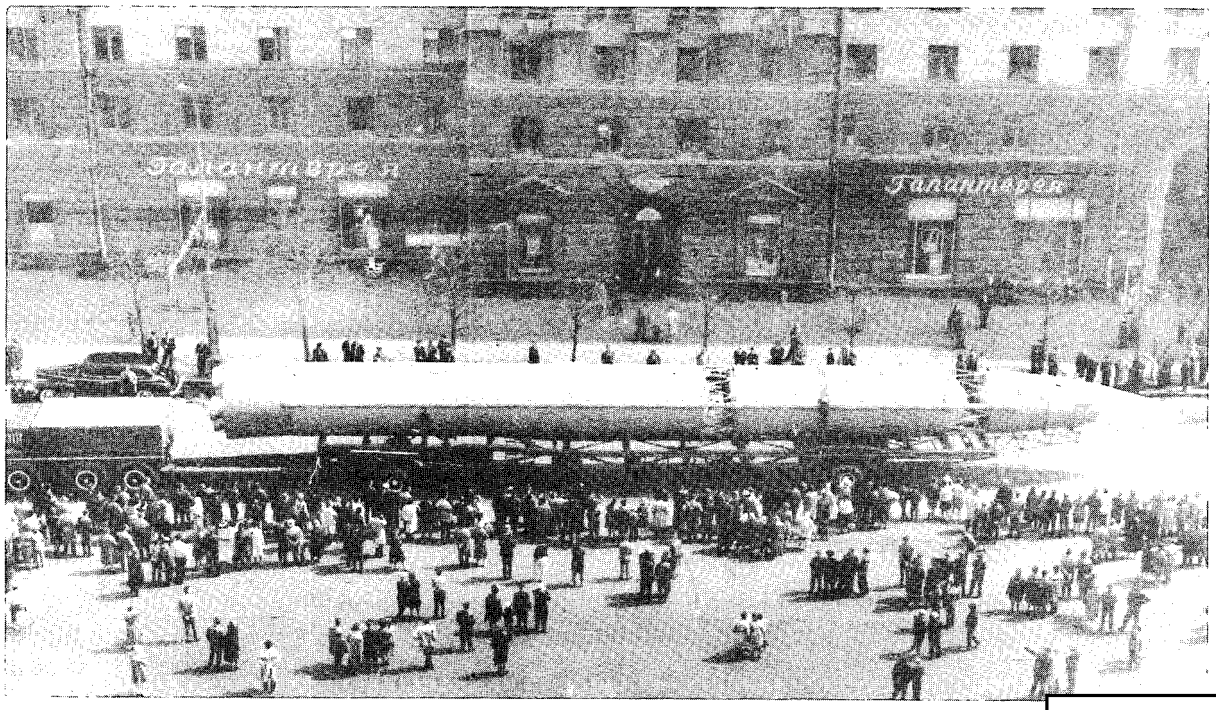
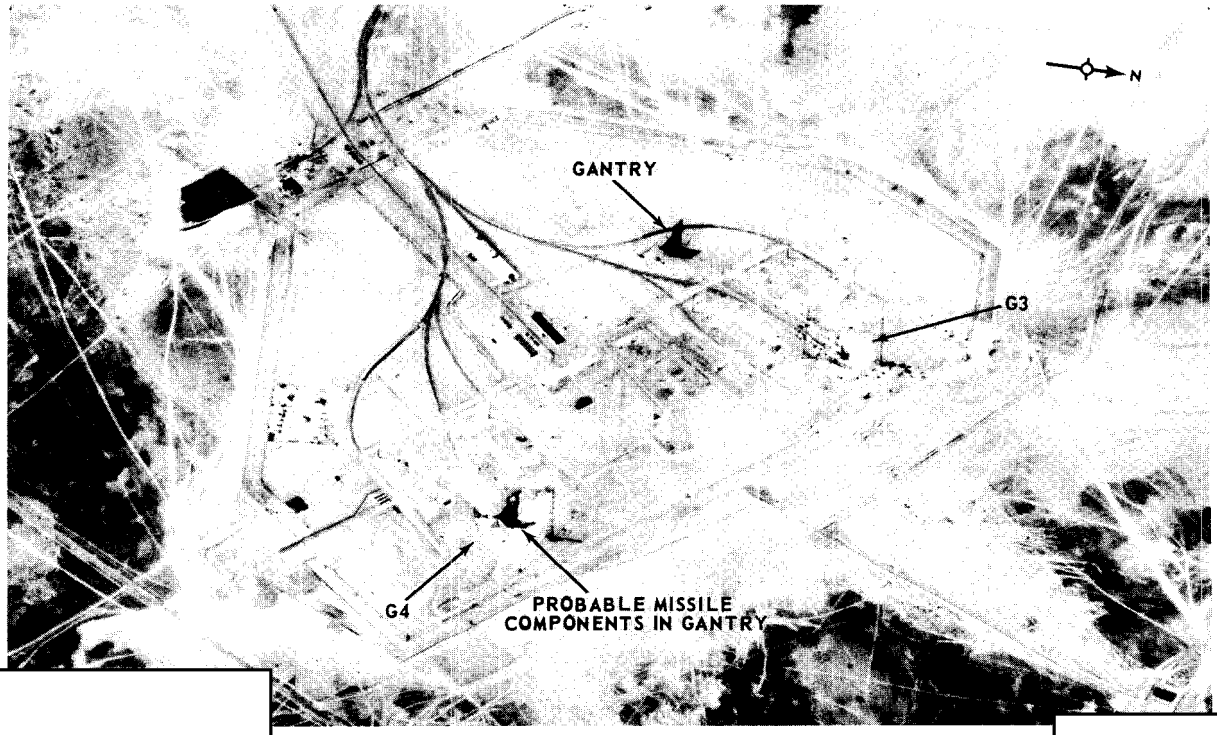


FIGURE 36. PARADE MISSILE (3-STAGE, LIQUID), MOSCOW, MAY 1965.

25X1

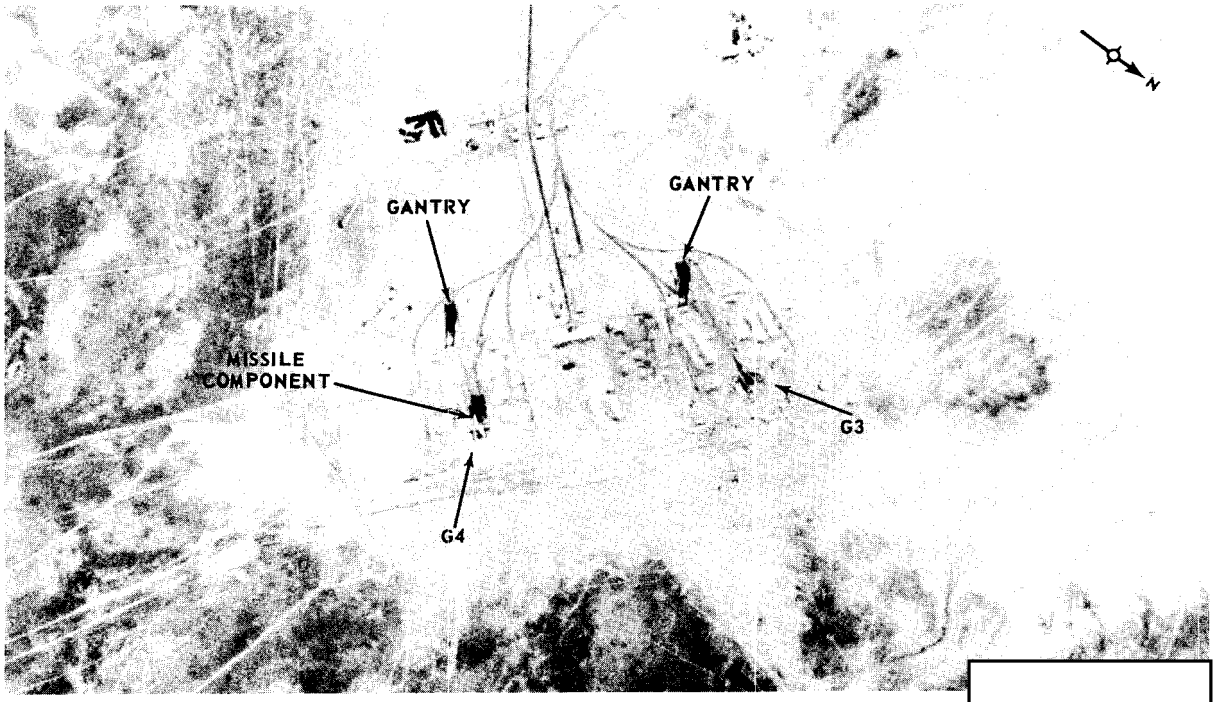
25X1



25X1

FIGURE 37. LAUNCH SITE G3/G4(11), TYURATAM.

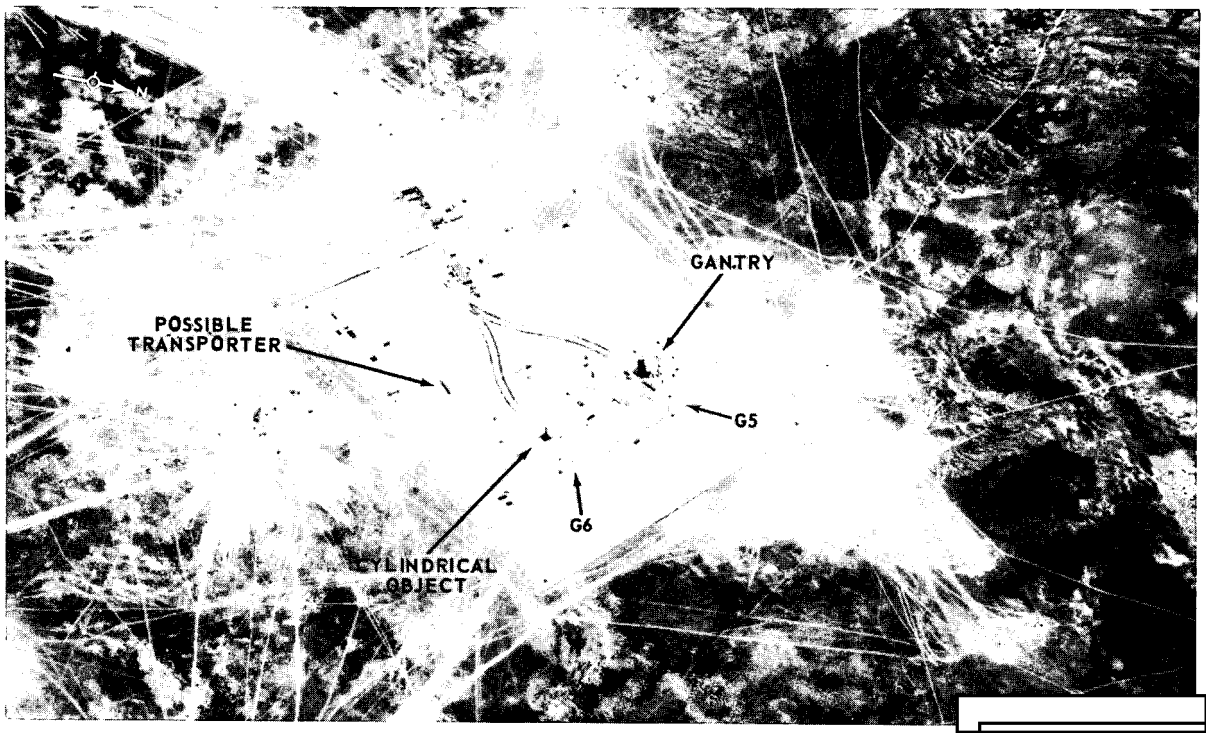
25X1



25X1

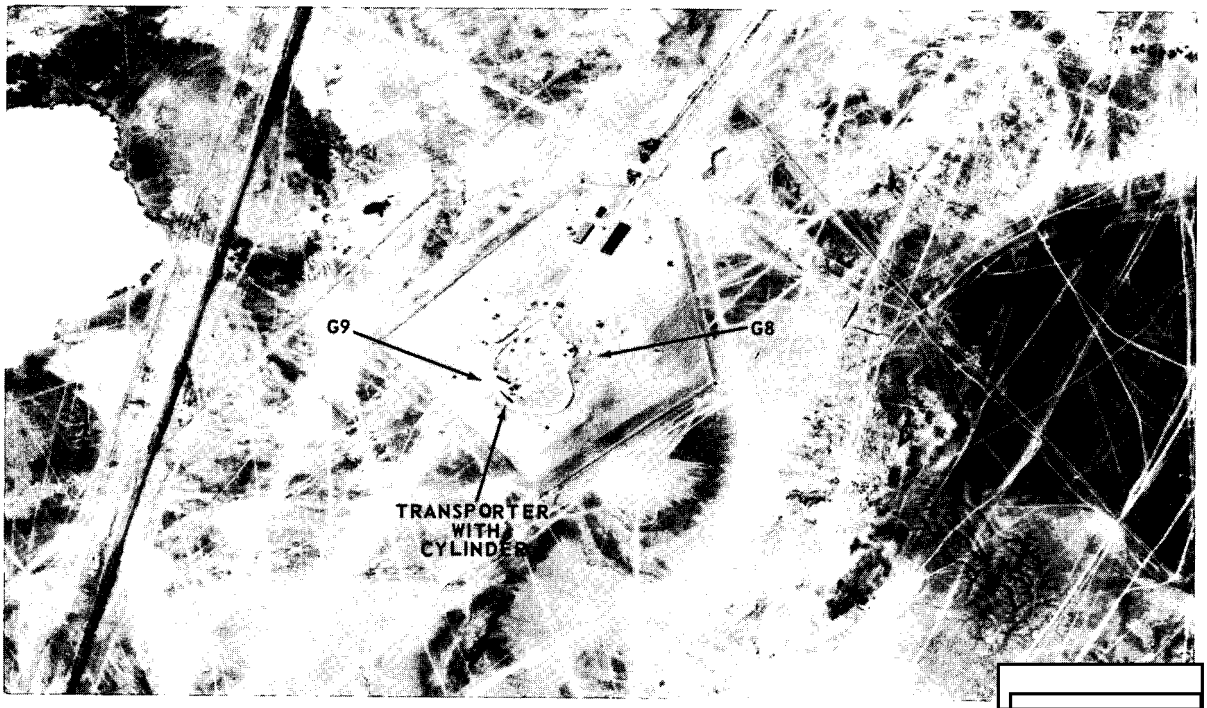
FIGURE 38. LAUNCH SITE G3/G4(11), TYURATAM.

25X1



25X1

FIGURE 39. LAUNCH SITE G5/G6(12), TYURATAM.



25X1

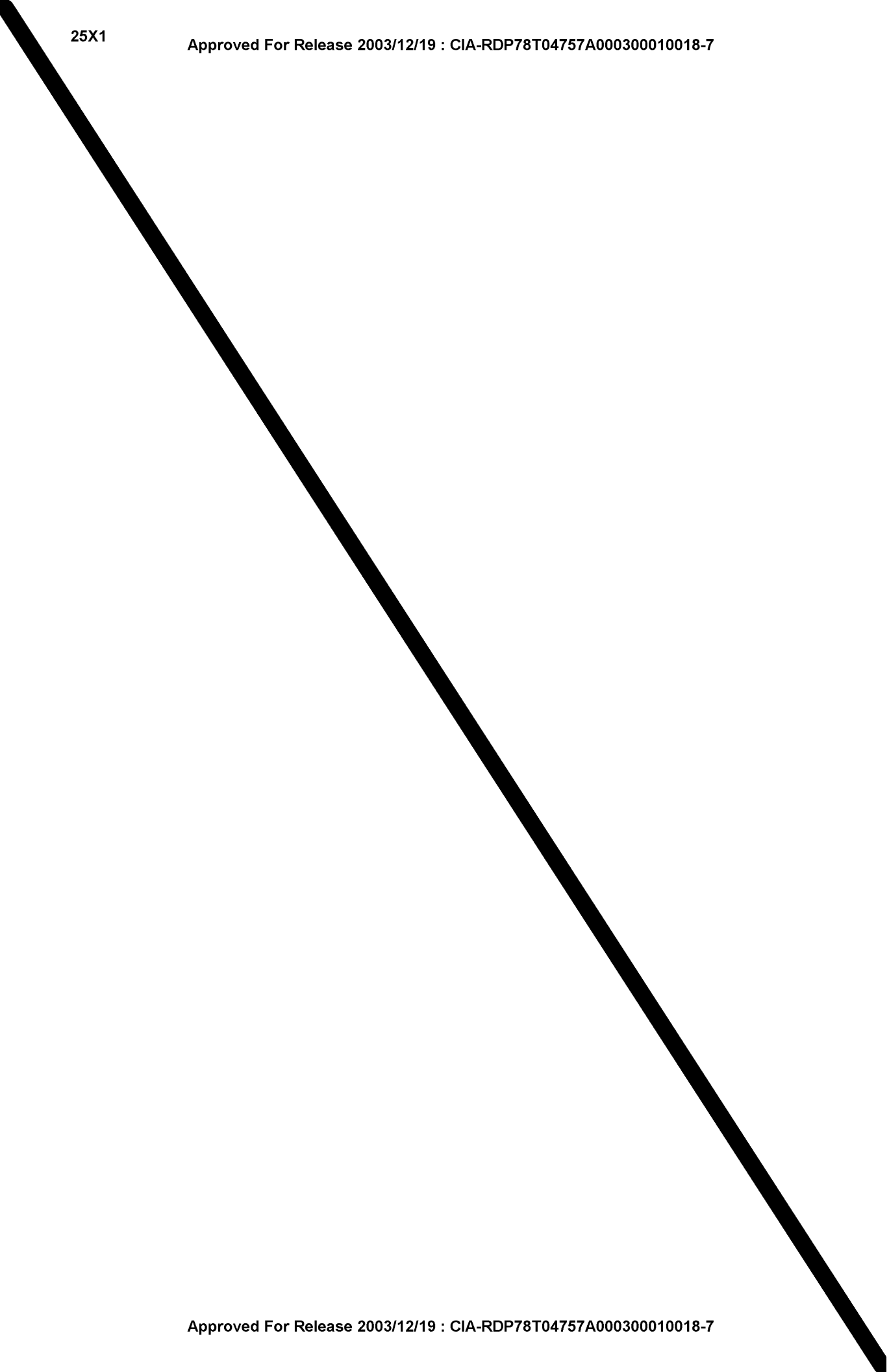
FIGURE 40. LAUNCH SITE G8/G9(19), TYURATAM.

25X1 25X

FIGURE 41. LAUNCH COMPLEX J, TYURATAM.

25X1

FIGURE 42. LAUNCH SITE K3(20), TYURATAM.



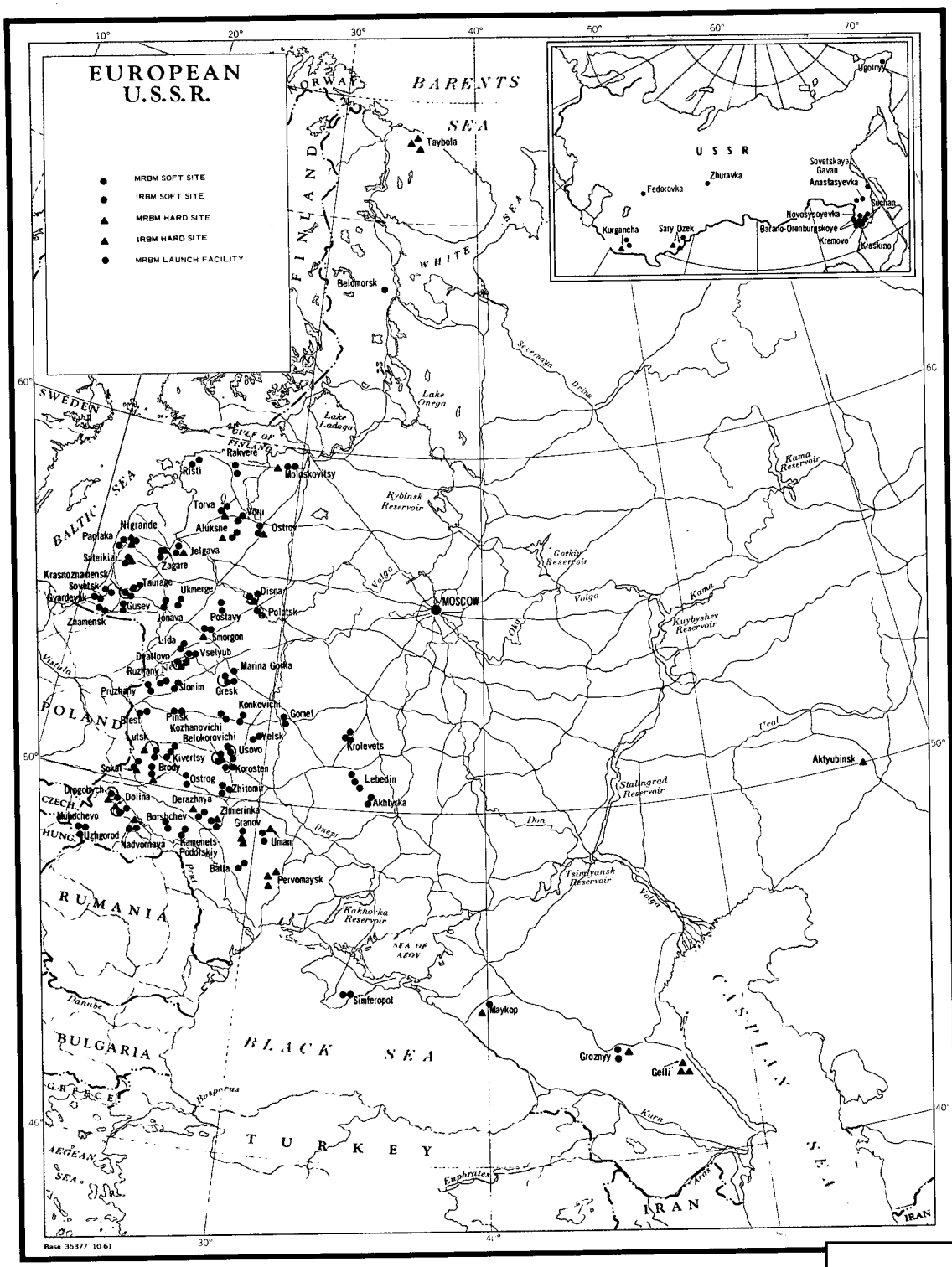


FIGURE 44. DEPLOYMENT OF SOVIET IRBM/MRBM COMPLEXES.

25X1

SOVIET IRBM/MRBM DEPLOYMENT

[redacted] photography since our 18th Revision covers 9 of the 14 IRBM, and 38 of the 67 MRBM complexes. With the discovery of 5 additional fixed field sites, we now carry a total of 80 of this type facility. Changes are reflected in Tables 4, 5, and 7. Locations of deployed IRBM/MRBM complexes are shown in Figure 44. Information on surface-to-surface launch sites at the Kapustin Yar Missile Test Center is given in Table 6. Typical configuraions of the launch sites, and the weapons system associated with each, are depicted in Figure 45. An evaluation of IRBM/MRBM sites without support facilities is given in Table 8. The composition of IRBM/MRBM complexes is given in Table 9.

IRBM DEPLOYMENT

Current Force Level

The IRBM element of the Soviet Strategic Rocket Forces remains at 33 sites containing a total of 112 launchers, including 54 in a hard configuration. Of these launchers, 109, including 51 in a hard configuration, are estimated to be operational. Additional coverage was not obtained of Taybola 3 since our latest revision, and we are continuing to carry it as the only IRBM site in the current inventory which has not reached an operational status. We suspect it may have been abandoned.

Sites Containing 2 Pads

In our 18th Revision we reported that 40 percent of available photography had been reviewed to determine if any other "half sites", such as the Bereza IRBM site, exist. This review has now been 90 percent completed with negative results.

Taybola Complex

The Taybola 1 and 2 launch sites were covered by [redacted] At Taybola 1, no missiles, equipment, or new construction were observed in the visible portions of the launch site. At Taybola 2 (Figure 46), expansion and improvement of the launch site is continuing. A new, fenced, unidentified area containing 2 probable aprons, each with as associated building is adjacent to the south edge of the double fence enclosing the launch site. A road connects the launch site and the new area. This new construction can be negated on [redacted] The speed with which this construction was accomplished, and the presence of the security fencing may have some significance. To date, there has been no evidence of the addition of similar facilities at any other deployed Type IV IRBM launch site. The Taybola 2 site support facility has been expanded and now contains 6 barracks-type buildings, a vehicle maintenance and storage section, and approximately 16 other buildings of various sizes.

25X1

25X1

MRBM DEPLOYMENT

Current Force Level

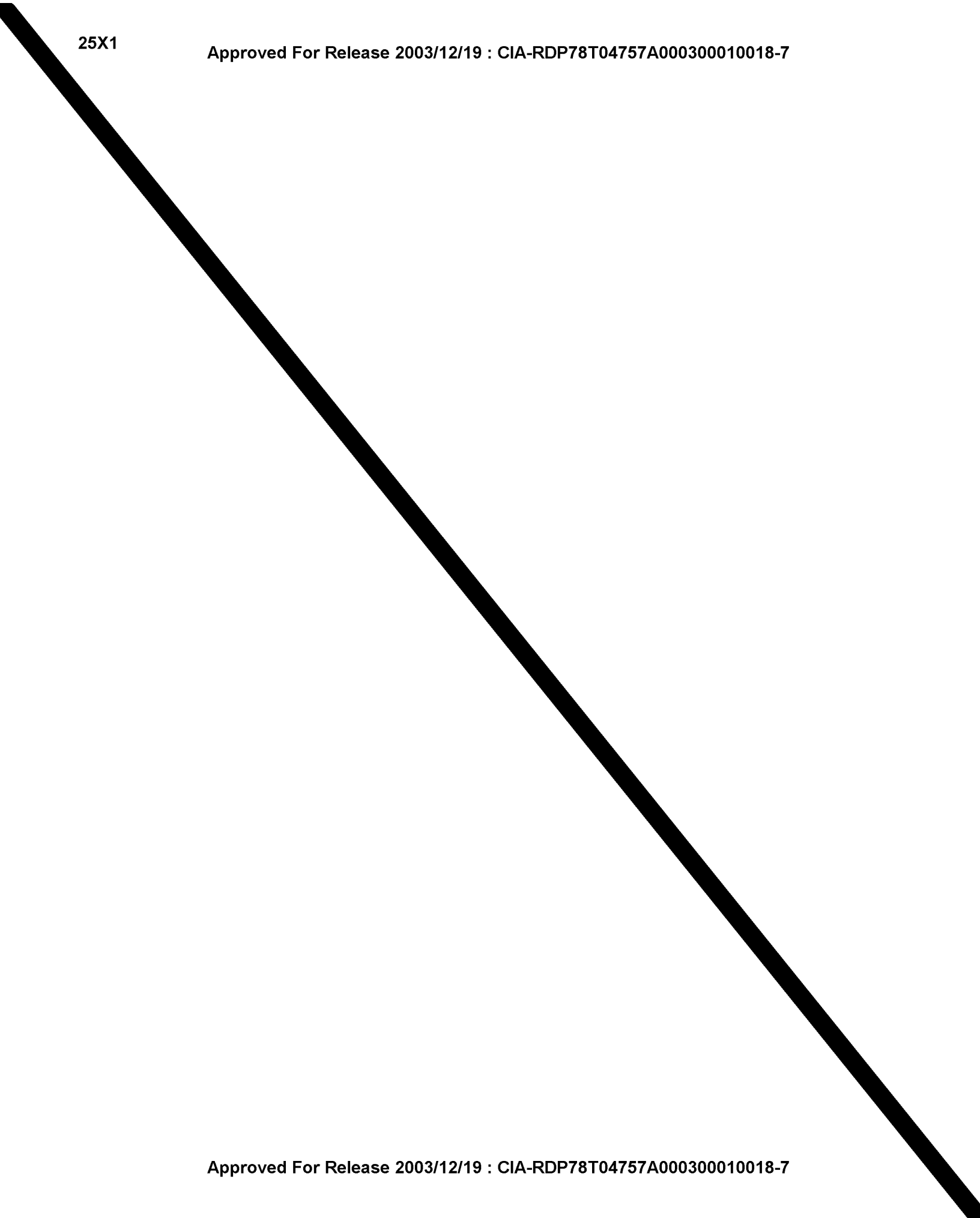
The Soviet MRBM force currently consists of 156 sites containing 624 launchers, including 84 in a hard configuration. All are operational. These figures are the same as those carried in our 18th Revision.

Fixed Field Sites

Five additional fixed field sites have been identified on [redacted] photography since our 18th Revision, bringing the total identified to date to 80. A list of these sites is given in Table 7.

25X1

The Sofiye Alekseyevskoye site (Figure 47),



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containing 3 launch positions, is the first fixed field site to be associated with the Barano-Orenburgskoye MRBM Complex. It can be negated on and is first visible on The Demidovo site (Figure 48), containing 4 launch positions, is the second fixed field site to be associated with the Disna MRBM Complex. It can be negated on and is first visible on The Kotly site (Figure 49), containing 4 launch positions, is the first fixed field site to be associated with the Moloskovitsy MRBM Complex. It cannot be negated on available photography and is first visible on The Kloostri site (Figure 50), containing 4 launch positions, is the first fixed field site to be associated with the Risti MRBM Complex. It can be negated on

The fifth newly identified site (Figure 51) is the first fixed field site to be associated with the Kurgancha MRBM Complex, and is designated Kurgancha. This fixed field site is located in a double-fenced rectangular area 4 nm north-northeast of Kurgancha MRBM Site 2. It contains 4 prepared, square, launch positions in a line, but oriented differently than both the Kurgancha MRBM sites. An area of tent bases is located outside the secured area to the west. Two buildings are visible inside the entrance to the site. A covered vehicle revetment, 3 open vehicle revetments, and several ground scars, possibly for buildings under construction, are also visible. The site can be negated on and is first visible on The state of construction activity and the difference in orientation of the 4 launch positions from both Kurgancha MRBM sites make this fixed field site unique. In fact, it may be of a different category than the other 79.

revealed an interesting item at the Dobele Army Barracks (Figure 52). Two probable SS-4 missiles on transporters are observed within this installation. The army barracks is connected by road with the Dobele Fixed Field Sites 1 and 2, which are associated with the Zagare MRBM Complex. These 2 sites are located 1.3 and 3.8 nm, respectively, northwest of the army barracks.

Analysis is continuing on all fixed field sites in an attempt to determine their function(s). Details of previous analyses are contained in previous revisions.

Ugolnyy Complex

Coverage of the Ugolnyy MRBM Launch Site (Figure 53) near Anadyr on revealed missile erectors on all 4 launch pads. Although no missiles were observed, 22 unidentified vehicles were within the launch site. One large and 2 small buildings are under construction in the site support facility, which also contains about 40 vehicles. These new buildings were probably under construction as early as A new unidentified area is under construction northeast of the site support facility. One HF rhombic antenna and 1 horizontal dipole antenna are in the communications area southeast of the site support facility. No apparent change is observed in the The Ugolnyy MRBM Complex is unique in that it is served only by air and water transport, and is the only IRBM/MRBM complex capable of covering targets in Alaska.

MODE OF OPERATION, TYPE IV IRBM/MRBM SITES

In our 16th Revision we made an analysis of IRBM/MRBM hard sites in an attempt to de-

termine their mode of operation, i.e., whether the missile flies out of the silo or is elevated prior to launch. Our postulated configuration for IRBM hard sites (Figure 54), based on the sum of the evidence, was depicted in the 16th Revision. We postulated that the MRBM configuration would be similar, except for somewhat smaller silo dimensions. At that time we stated that the sum of the evidence, while not conclusive, indicated a good possibility that both IRBM and MRBM hard sites are configured to employ a fly-out mode of operation.

In [redacted] the Soviets released a film entitled "Rockets in Defense of Peace" which showed, in sequence, a camouflaged silo with the door closed; the silo door sliding laterally to expose the silo opening; a close-up of the silo with the nose of the missile exposed; the interior of an IRBM silo (Figure 55); and then the firing of an MRBM from a silo. With this additional information, we now believe that the sum of the evidence is conclusive that both IRBM and MRBM hard sites are configured to employ a fly-out mode of operation, basically in the manner described in our 16th Revision.

[redacted]

[redacted]

X1

KAPUSTIN YAR MISSILE TEST CENTER

Test Range Facilities

25X1 provided good-quality coverage of all surface-to-surface missile facilities at the Kapustin Yar Missile Test Center (Figure 64). The photography reveals several missile exercises, but no major new developments. A brief description of the activity at each of these facilities is given in succeeding paragraphs.

There is no missile activity identified at Launch Complex A (Figure 65); however, a possible KY-2 missile is located near the drive-through building in the support area.

Launch Area 1C (Figure 66) at Launch Complex C consists of 3 rail-served launch pads. The launchers on the pads at Launch Sites 1C2 and 1C3 resemble that previously located on the older pad at Launch Site 1C1. The purpose of the newer pads is not clear, but could be related to an expansion of the Cosmos Satellite Program, and could possibly bear a relationship to future solid fuel missile testing.

At Launch Area 2C (Figure 67), an SS-4 exercise in underway at Launch Site 2C2. An approximately 70-foot-long SS-4 missile on a transporter, an erector, a fuel transporter, 2 oxidizer trailers, and 14 other support vehicles are on, or immediately adjacent to, the pad. The relative positions of the vehicles at this launch pad are practically identical to those at an SS-4 launch site identified in Cuba X1 Modifications are taking place within the launch area. Open ditches are visible in several locations, including across the roads serving Launch Site 2C1.

There is no activity apparent at Launch Area 3C (Figure 68), but 2 empty missile transporters are located on the southern dumbbell.

At Launch Area 4C, the rail line branching off the line serving Launch Area 1C is being continued to the western rear silo at Launch Site 4C1 (Figure 69). The railbed has been constructed to the edge of the rear silo; however, the rails have been laid only to a point just inside the western fenceline. The tall structure still covers the northeast silo. A large square building has been constructed in the excavation just southwest of the western rear silo.

At Launch Area 5C, an SS-5 training exercise is noted on the north pad at Launch Site 5C1 (Figure 70). The missile, which apparently is identical to the missile observed on the south pad on 25X1 is backed up to an erector. Other support vehicles are observed in the area. The possible dismantling of the southern pad, previously reported, is actually a dark discoloration of the roadway immediately behind the pad.

A few vehicles are present in the launch area at Launch Complex E (Figure 71), but no missile activity can be identified.

25X1 coverage of Launch Complex G (Figure 72). From an analysis of the launch area it is believed that this facility has never been completed. The roads do not appear to have been used and there is no vehicular track activity around the launch pads. This area appears to be completely inactive and may never have been used.

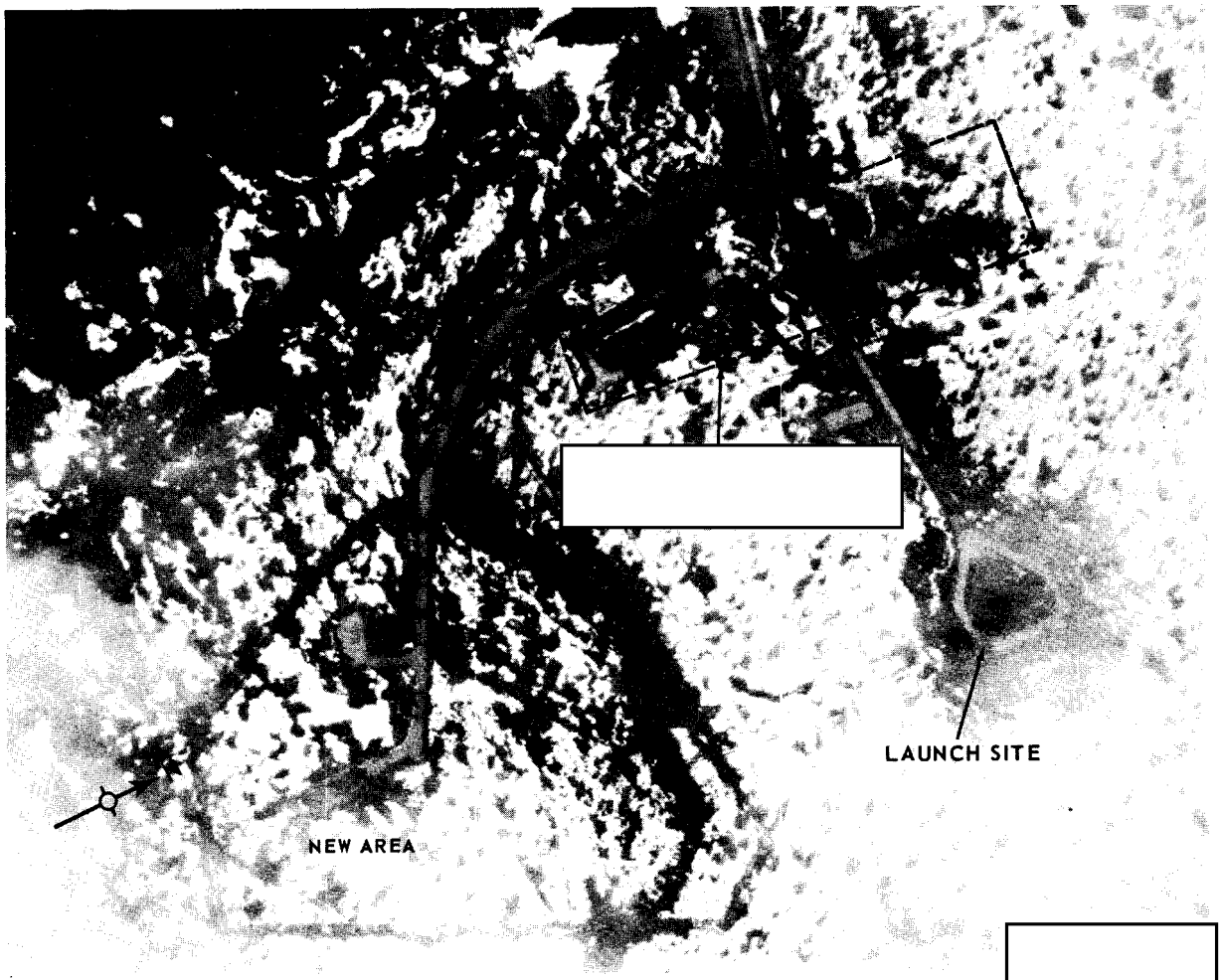
Launch Complex H (Figure 73) still is under construction but should be completed soon. The launch pads are only about 475 feet apart, which suggests that a small weapon will be fired from this area.

25X1

Test Range SSM Activity

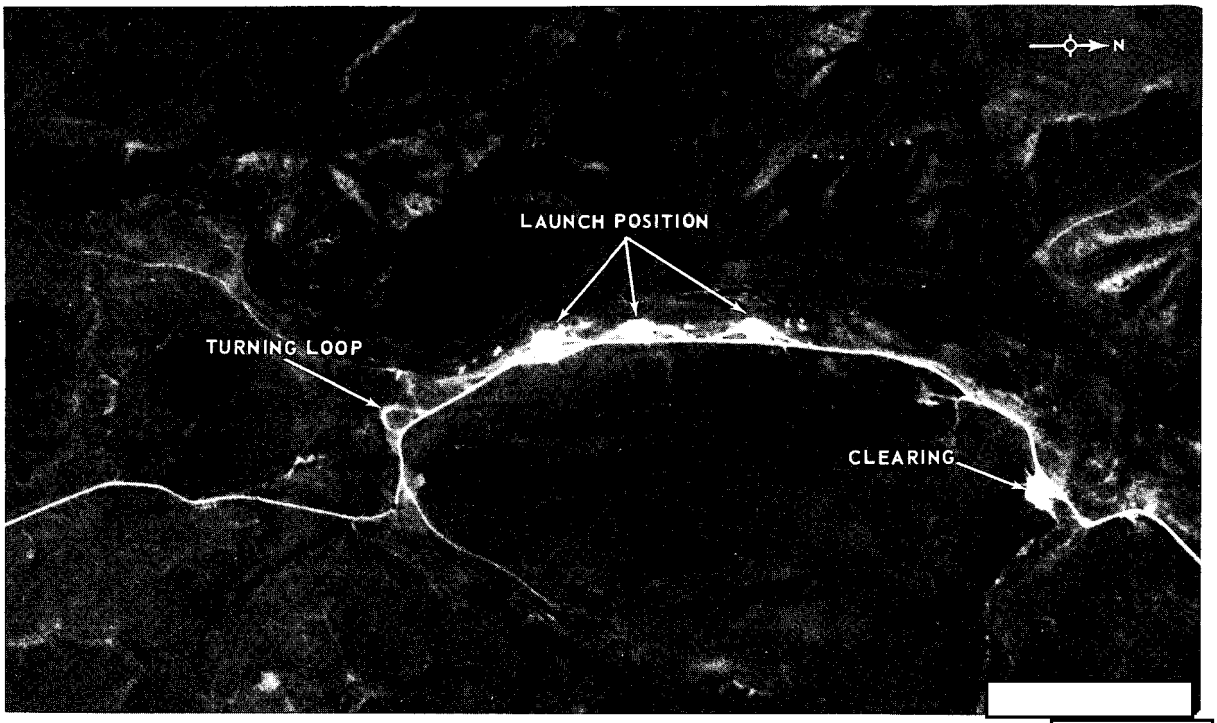
During the period [redacted] a total of 5 MRBMs was launched from Kapustin Yar. One SS-4 was fired to the 1020-nm impact area on [redacted] and probable SS-3s were launched to the 630-nm impact area on [redacted] No SS-5 firings were identified.

Firings of a new system or systems to tactical ranges continued, with a 300-nm KY-3 firing occurring on [redacted] and a 450-nm KY-2 on [redacted] Of interest in this respect is the possibility that this firing program may be associated with the Soviet mobile missile displayed in the 9 May 1965 Moscow Parade (Figure 74). This new missile, designated the SCAMP, is carried in a heavy pod aboard a self-propelled transporter-launcher. Marshal Krylov, Commander of the Soviet Rocket Forces, described this weapon as a solid-propellant system that could be fired to a range of 4,000 kilometers. No Soviet flight-test program to strategic ranges can be equated with this missile. More analysis will be required before Krylov's claim can be verified on disproved.



25X1

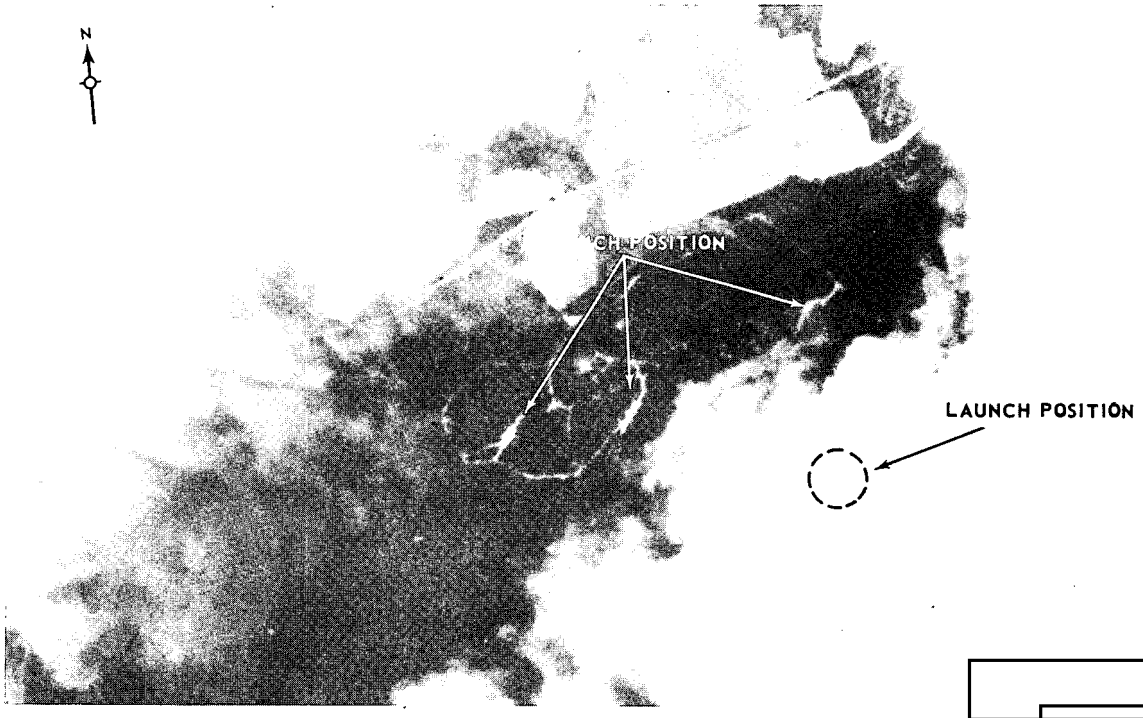
FIGURE 46. TAYBOLA 2 LAUNCH SITE, TAYBOLA IRBM COMPLEX.



25X1

FIGURE 47. SOFIYE ALEKSEYEVSKOYE FIXED FIELD SITE, BARANO-ORENBURGSKOYE MRBM COMPLEX.

25X1



25X1

FIGURE 48. DEMIDOVO FIXED FIELD SITE, DISNA MRBM COMPLEX.

25X1

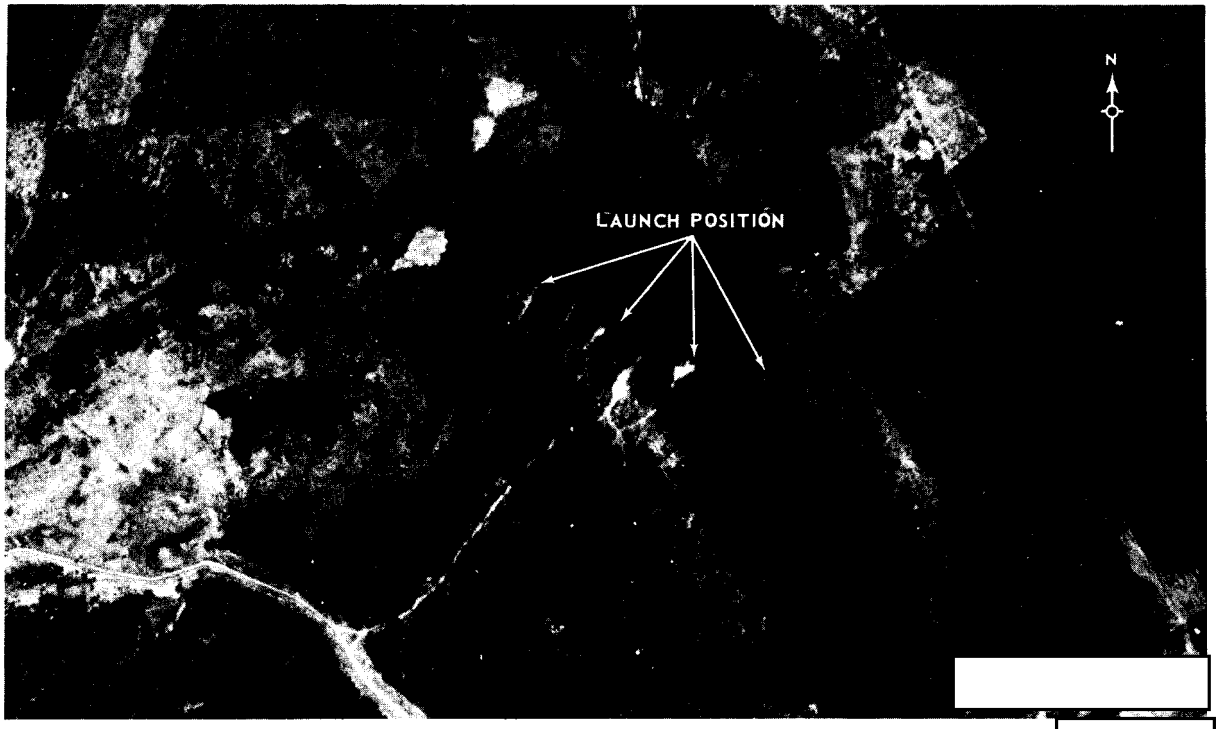


FIGURE 49. KOTLY FIXED FIELD SITE, MOLOSKOVITSY MRBM COMPLEX.

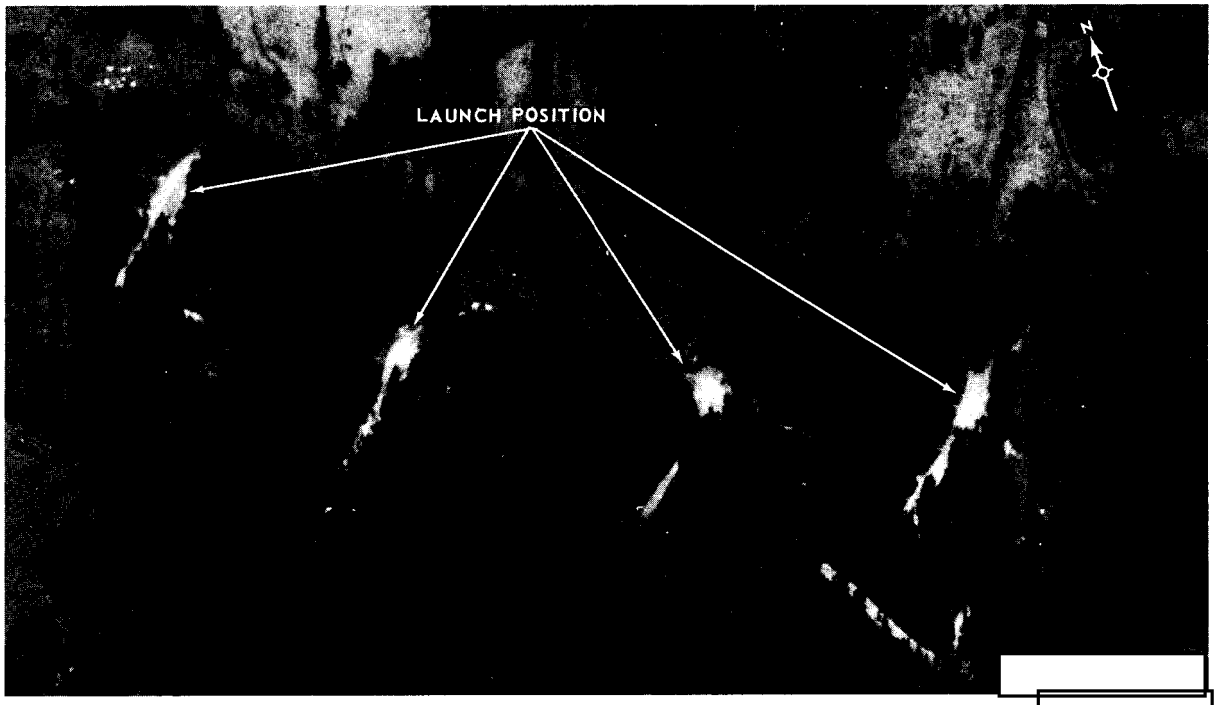
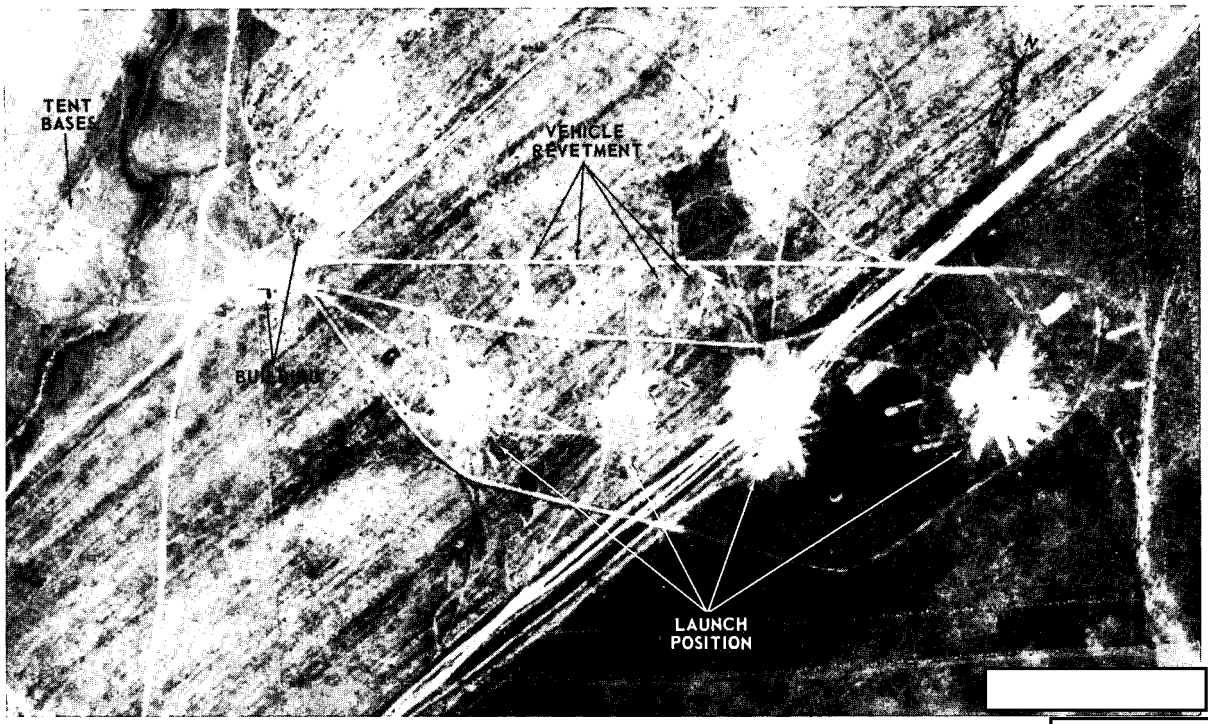


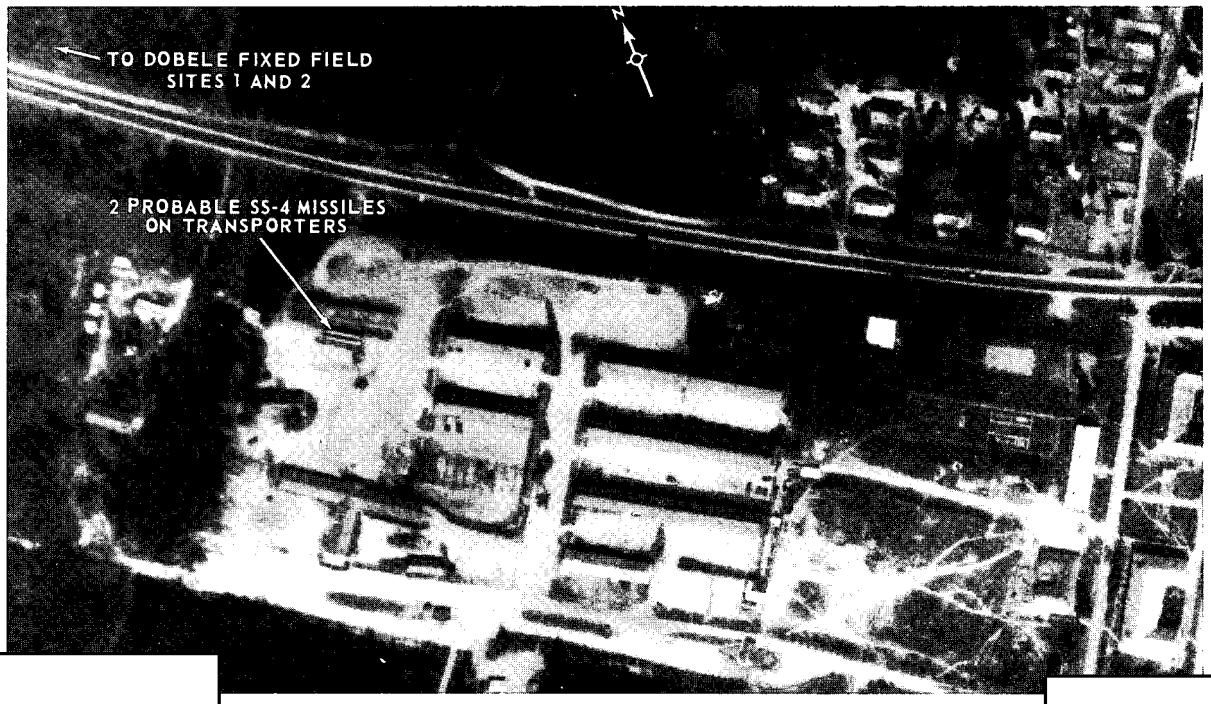
FIGURE 50. KLOOSTRI FIXED FIELD SITE, RISTI MRBM COMPLEX.



25X1

FIGURE 51. KURGANCHA FIXED FIELD SITE, KURGANCHA MRBM COMPLEX.

25X



25X

FIGURE 52. PROBABLE SS-4 MISSILES, DOBELE ARMY BARRACKS.

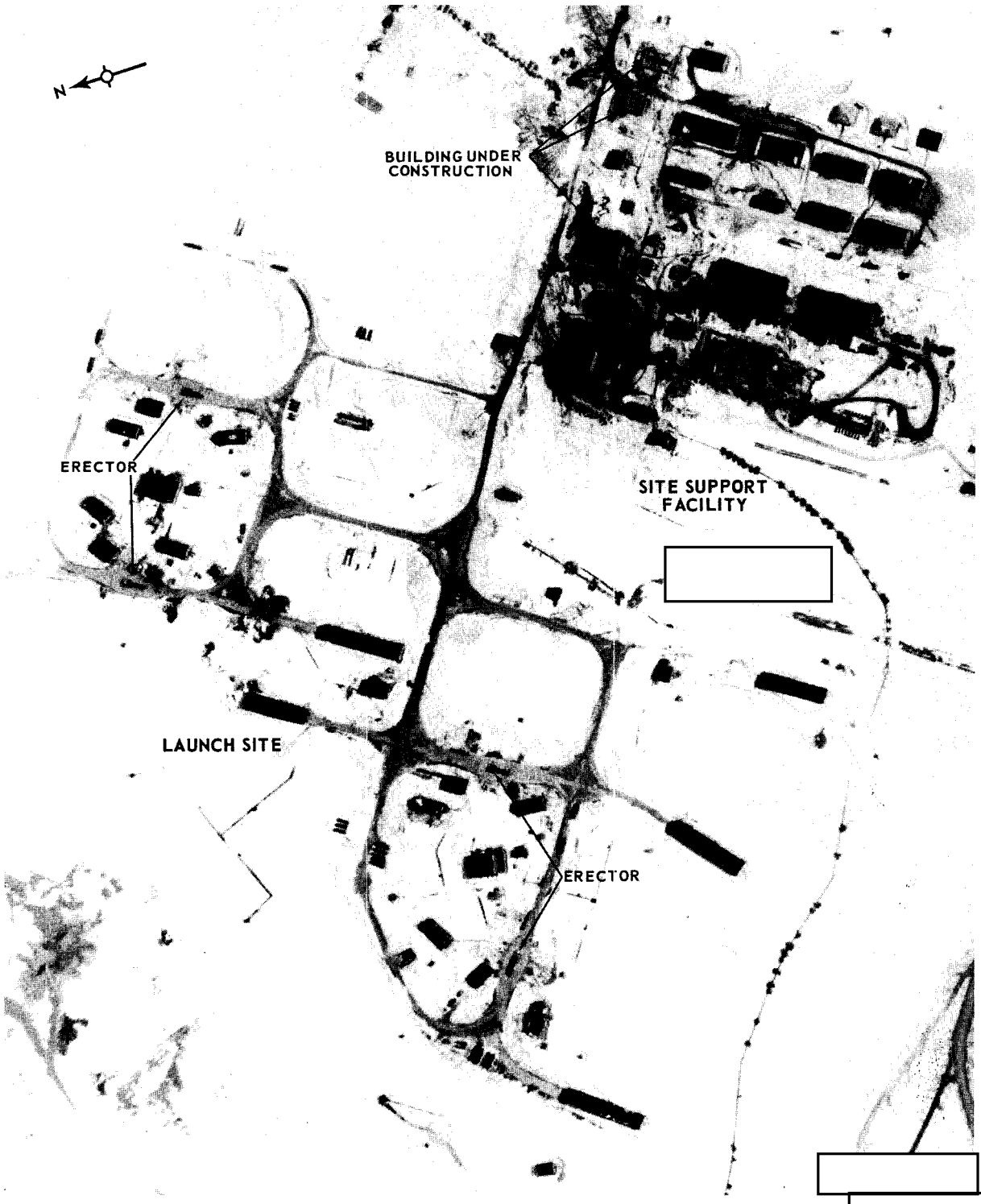


FIGURE 53. UGOLNYY LAUNCH SITE, UGOLNYY MRBM COMPLEX.

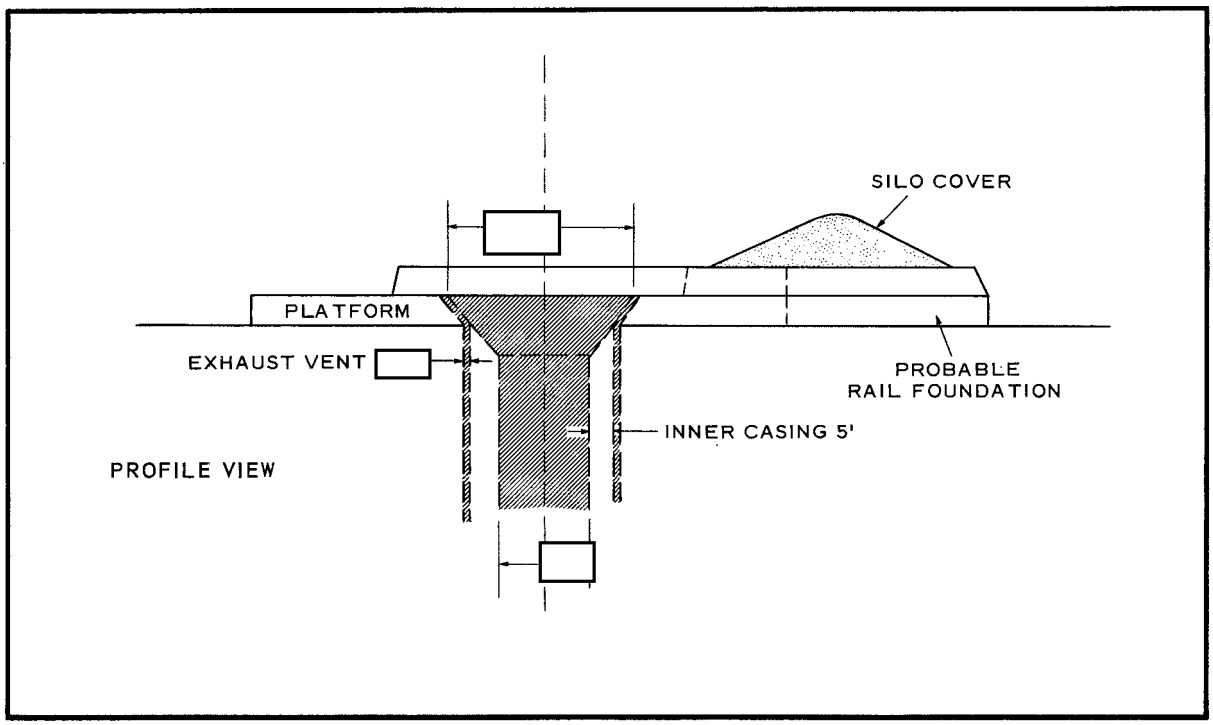
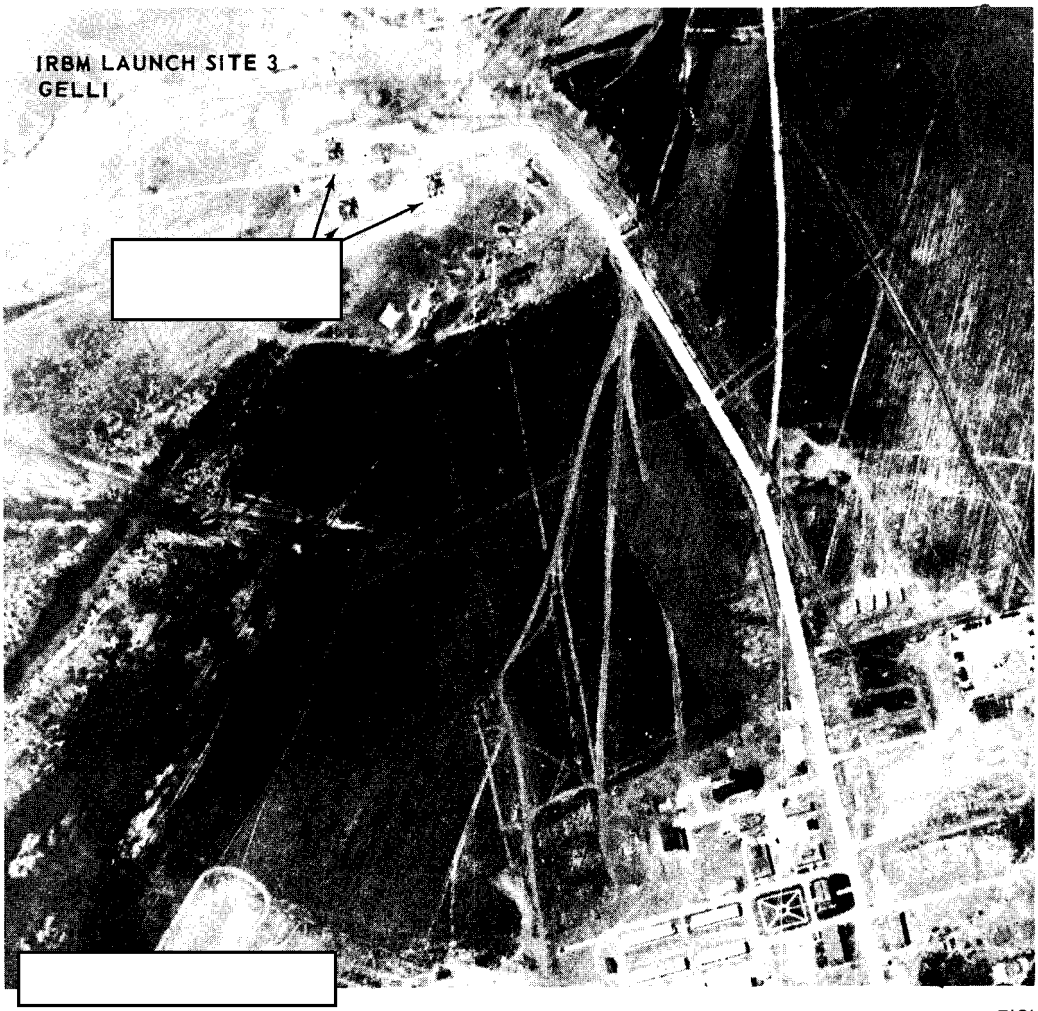


FIGURE 54. PLAN VIEW (SIDE) OF POSTULATED TYPE IV IRBM LAUNCH SILO.



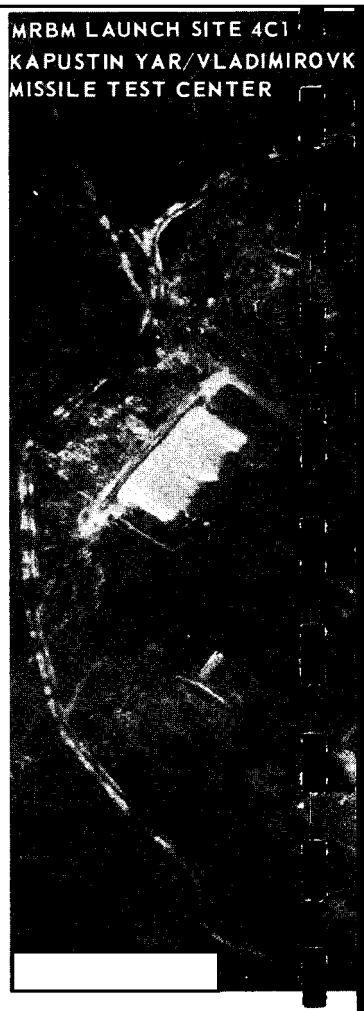


FIGURE 55. "FLY-OUT" CAPABILITY,

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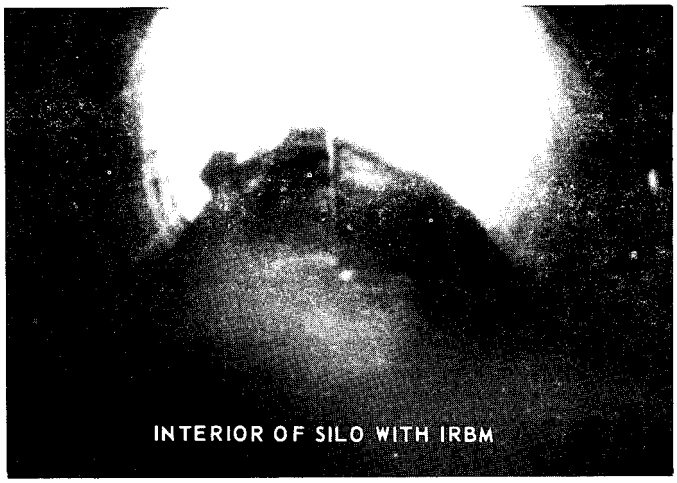
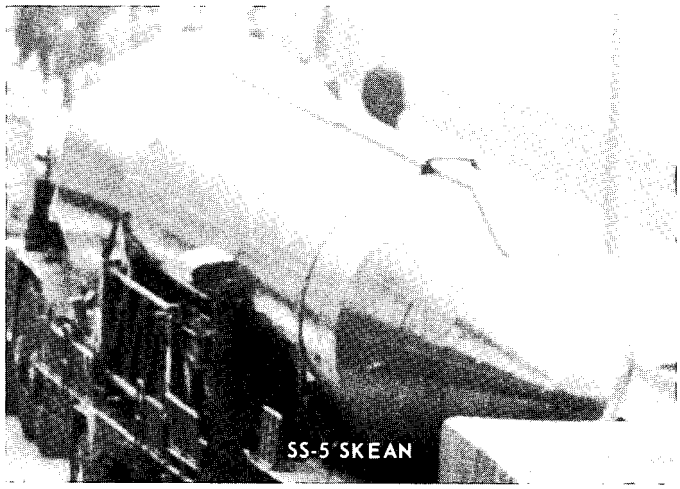
TOP SECRET

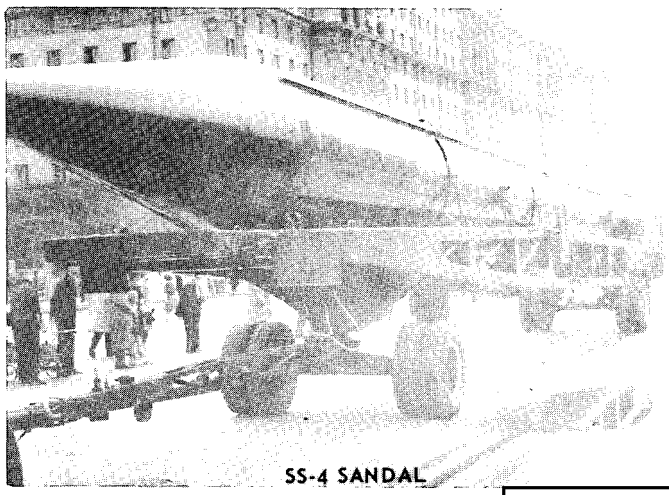
CLOSE-UP OF SILO WITH MISSILE



INTERIOR OF SILO WITH IRBM



SS-5 SKEAN

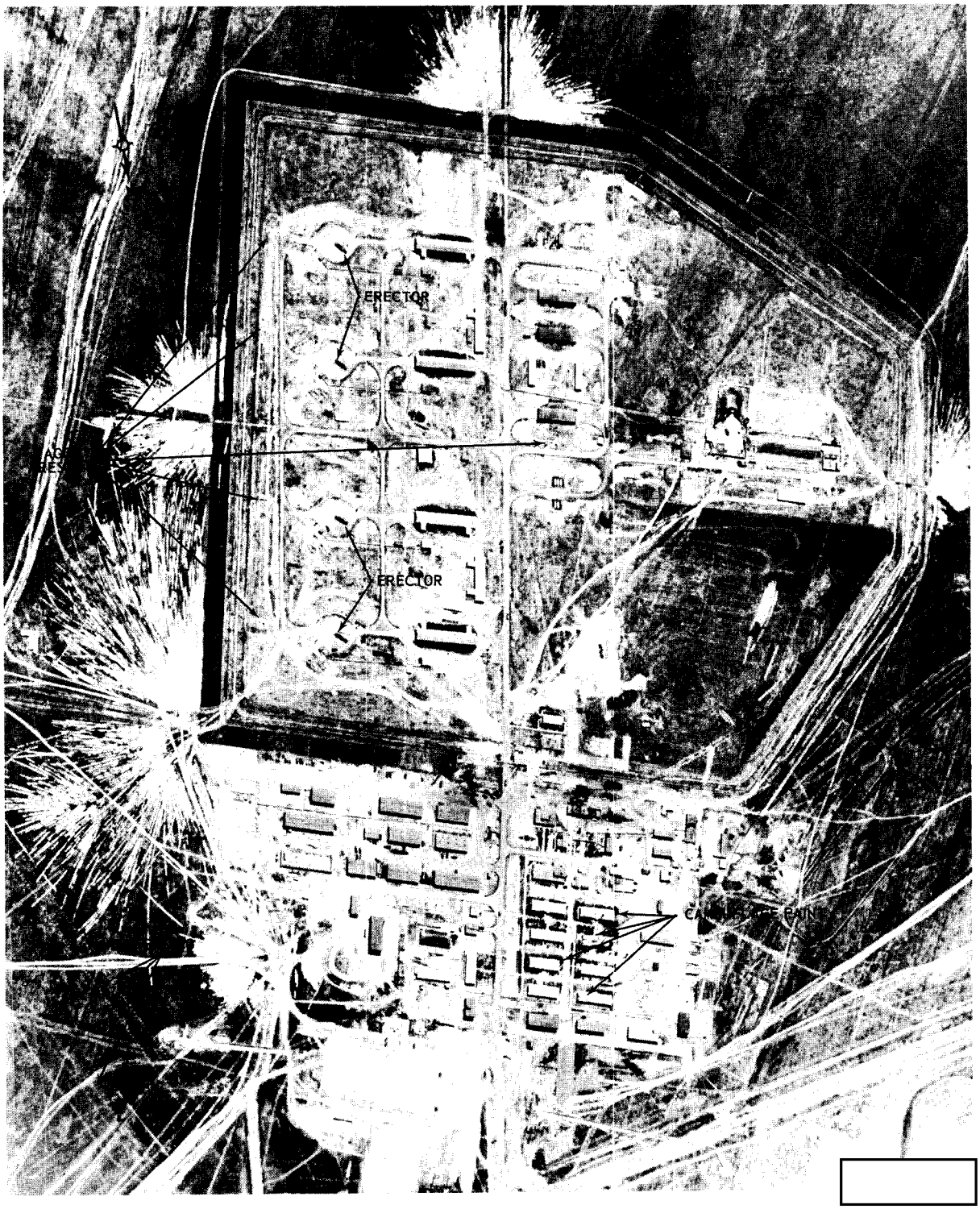


SS-4 SANDAL

SOVIET IRBM/MRBM HARD SITES.

25X1

25X1



25X1

FIGURE 56. KURGANCHA 1 LAUNCH SITE, KURGANCHA MRBM COMPLEX.

25X1

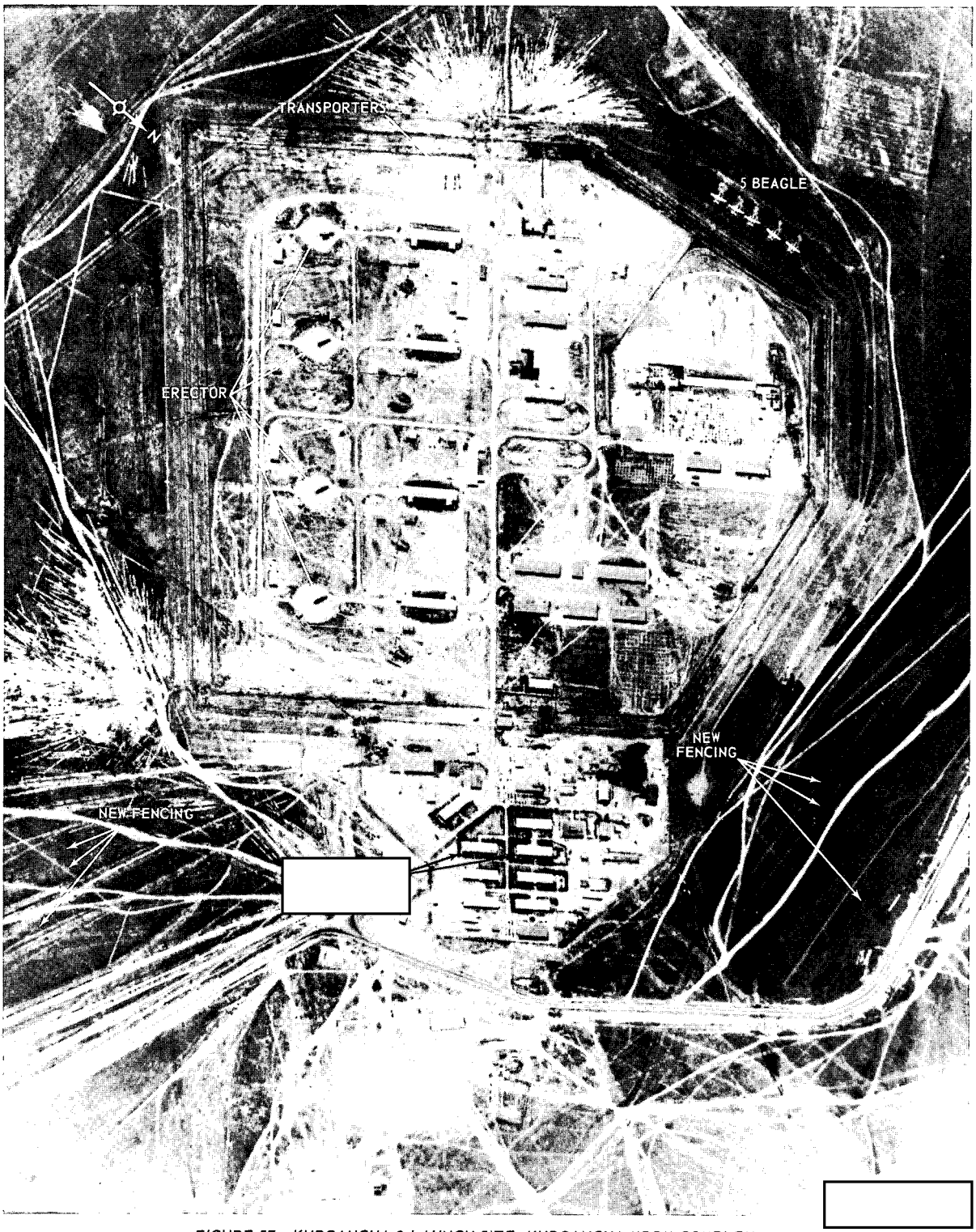


FIGURE 57. KURGANCHA 2 LAUNCH SITE, KURGANCHA MRBM COMPLEX.

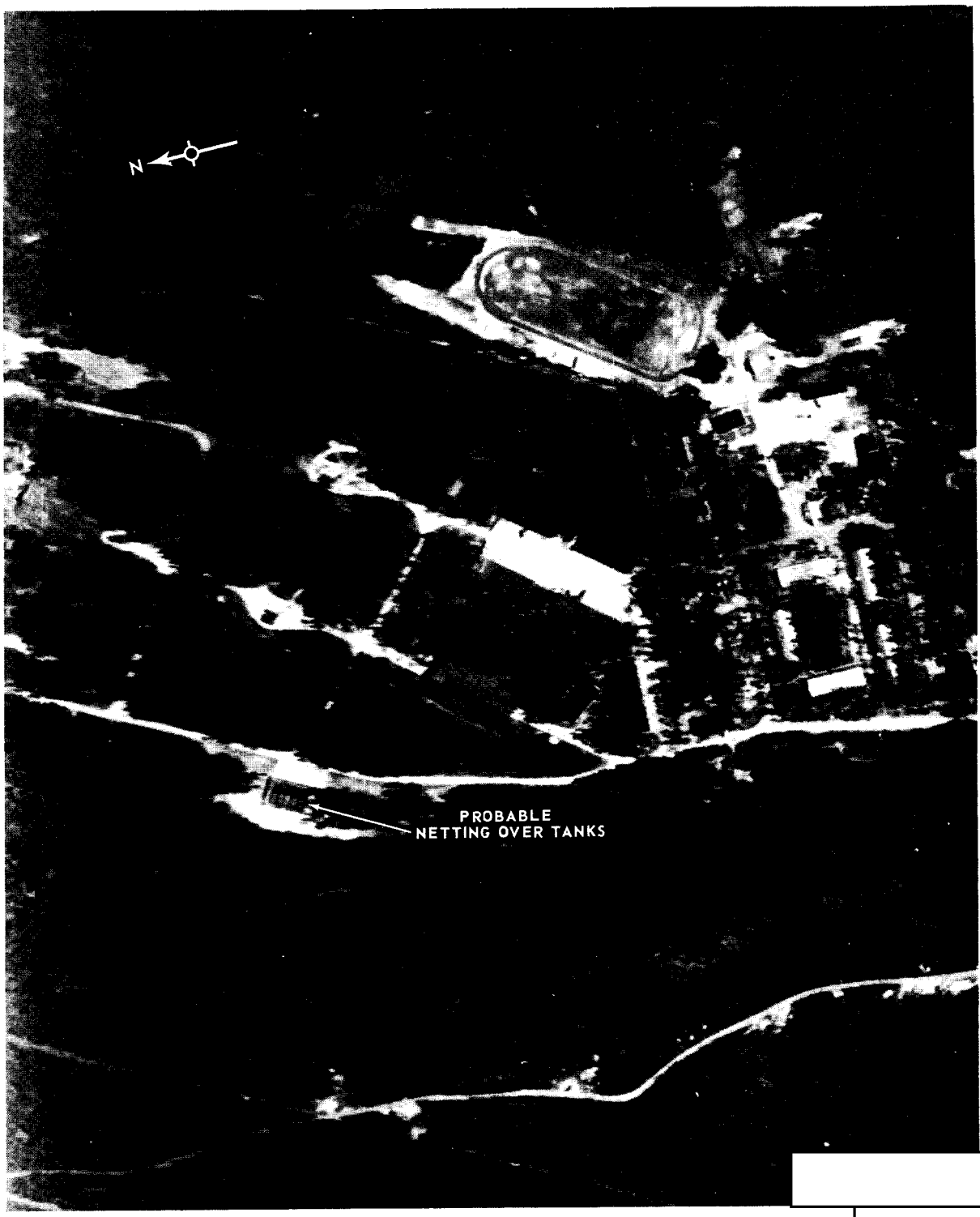


FIGURE 58. RISTI 1 LAUNCH SITE, RISTI MRBM COMPLEX.

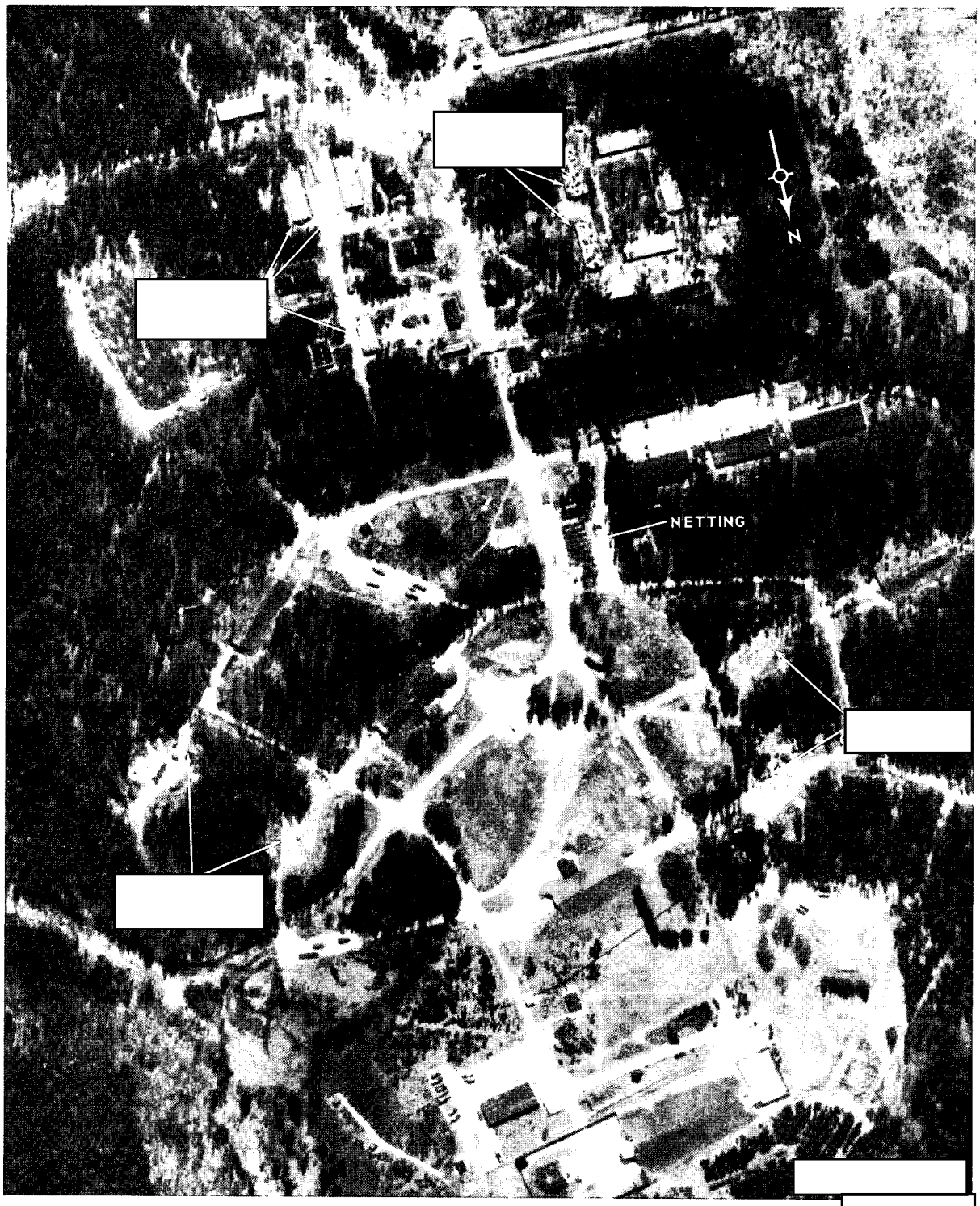


FIGURE 59. RISTI 2 LAUNCH SITE, RISTI MRBM COMPLEX.

FIGURE 60. TAURAGE 1 LAUNCH SITE, TAURAGE MRBM COMPLEX.

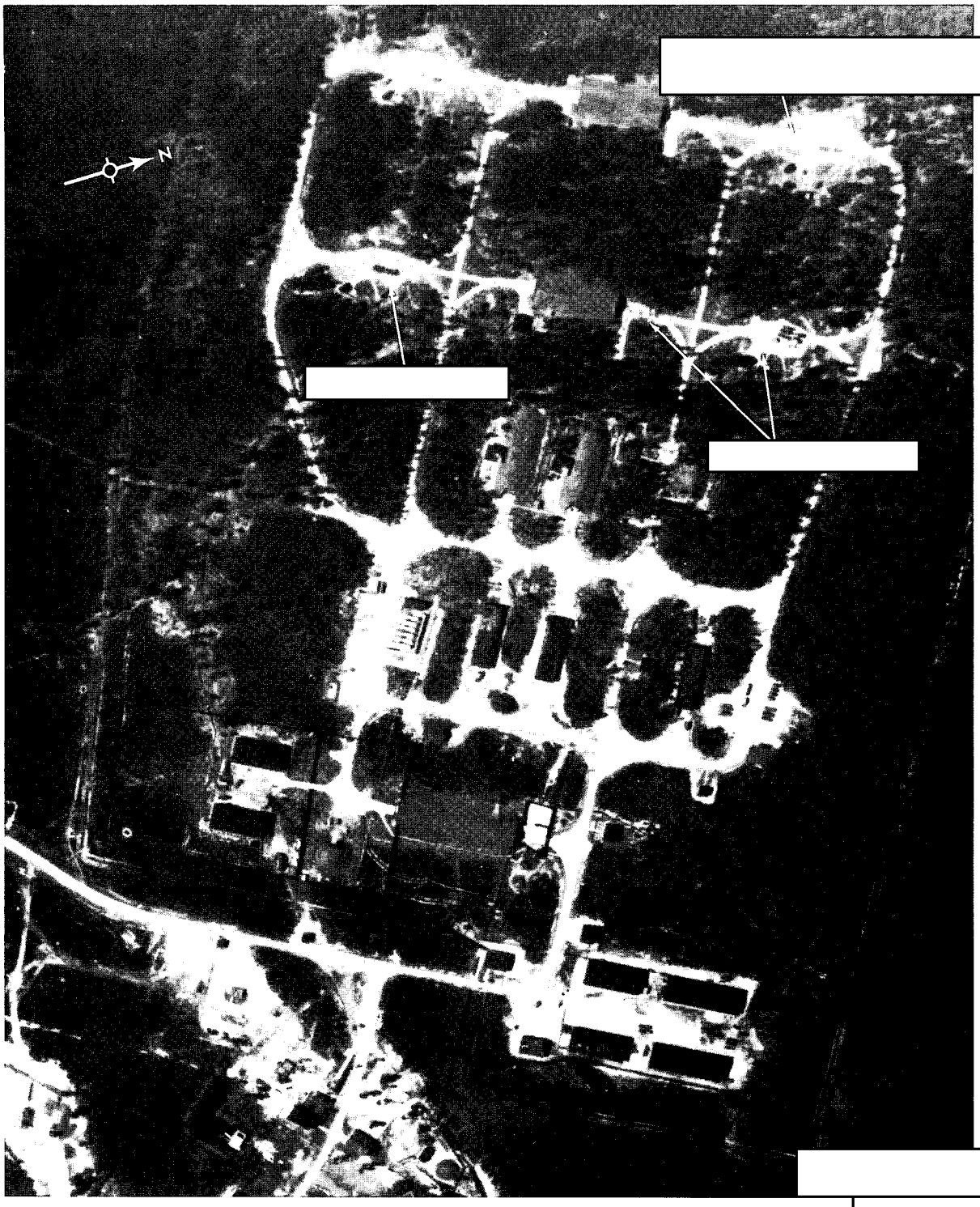


FIGURE 61. SHEVELEVO LAUNCH SITE, OSTROV MRBM COMPLEX.

25X1

25X1

25X1

25X

25X1

25X

FIGURE 62. ZAGARE 1 LAUNCH SITE, ZAGARE MRBM COMPLEX.

25X1

25X1

FIGURE 63. SOFIYE ALEKSEYEVSKOYE LAUNCH SITE, BARANO-ORENBURGSKOYE MRBM COMPLEX.

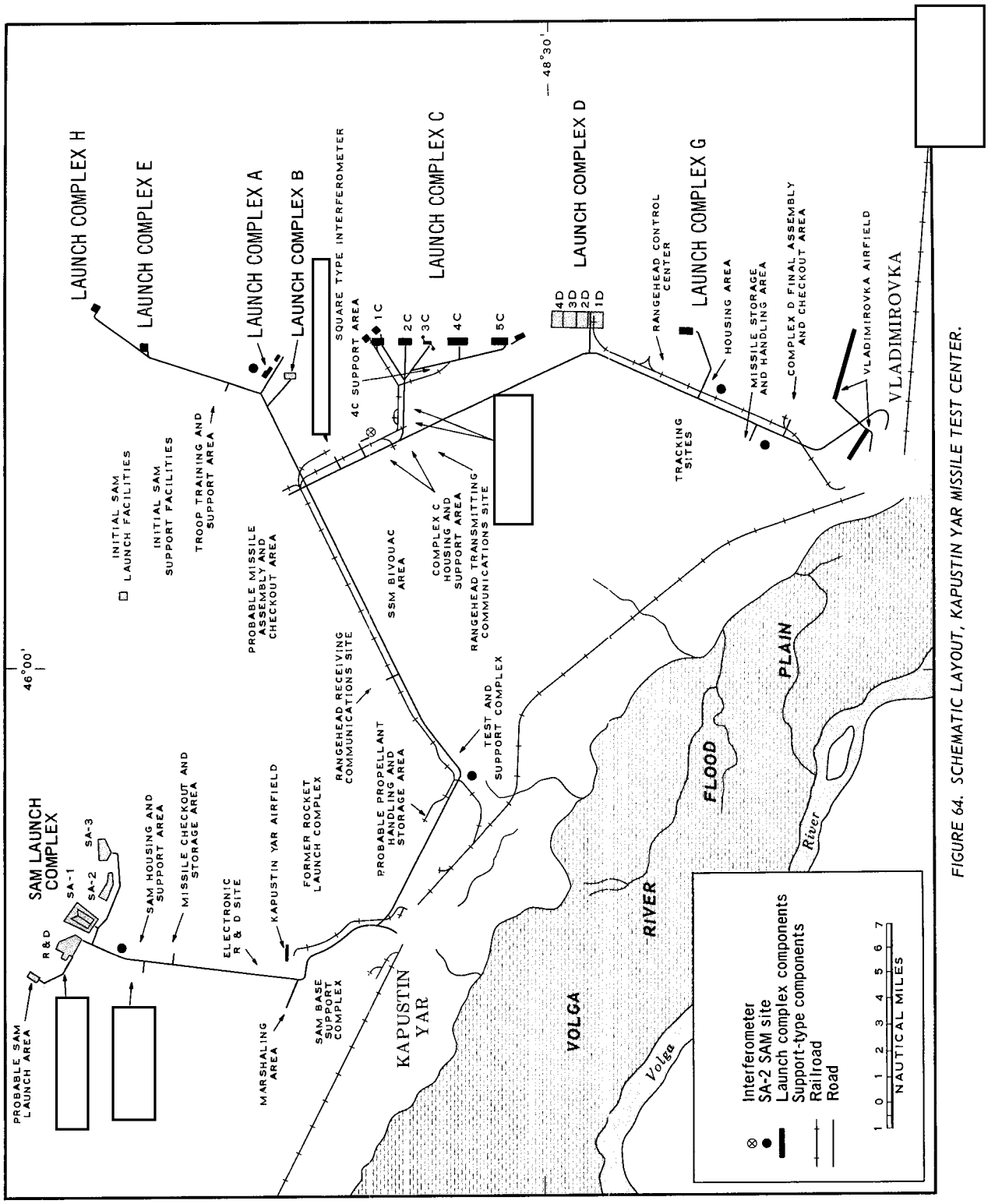


FIGURE 64. SCHEMATIC LAYOUT, KAPUSTIN YAR MISSILE TEST CENTER.

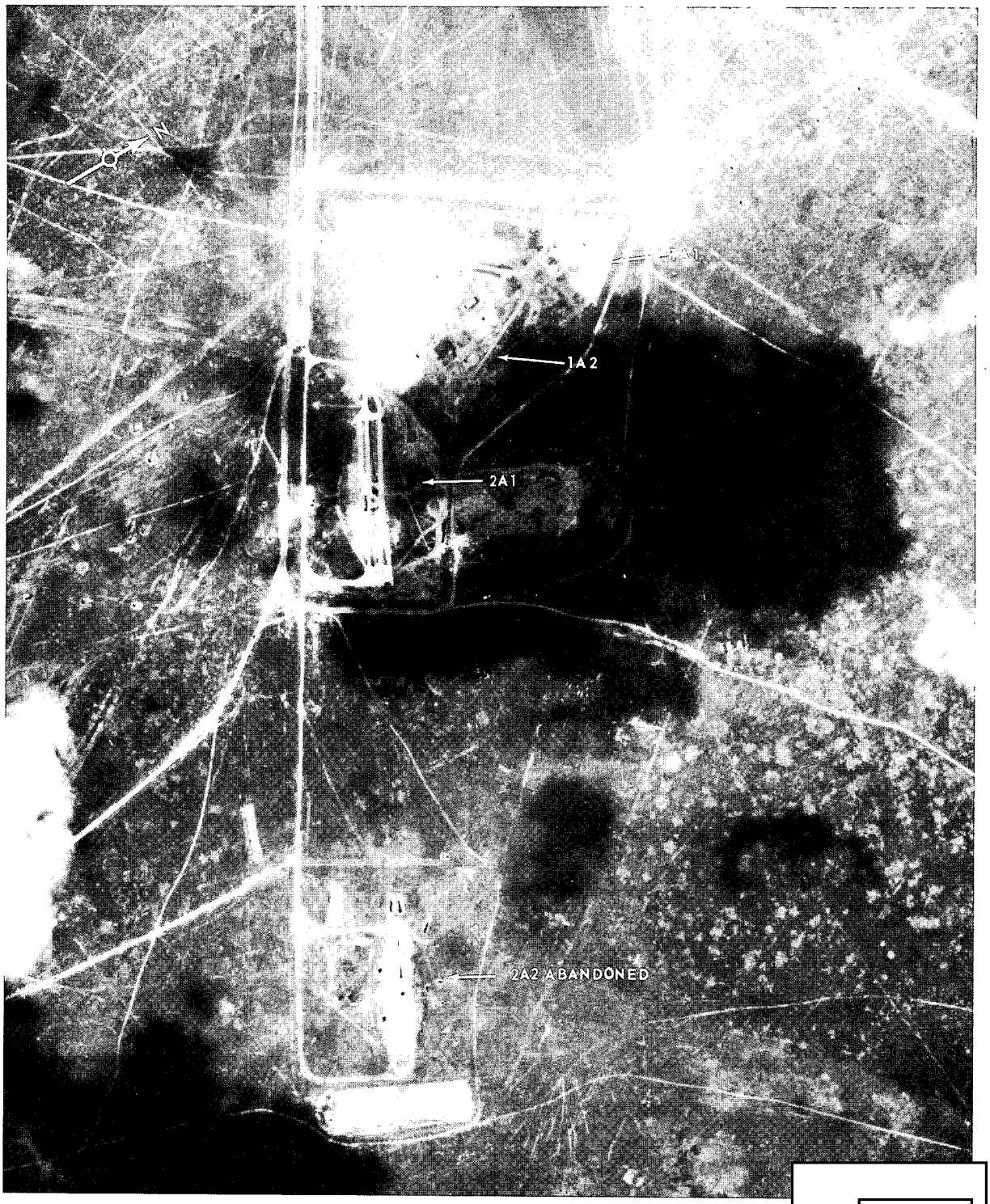


FIGURE 65. LAUNCH COMPLEX A, KAPUSTIN YAR.

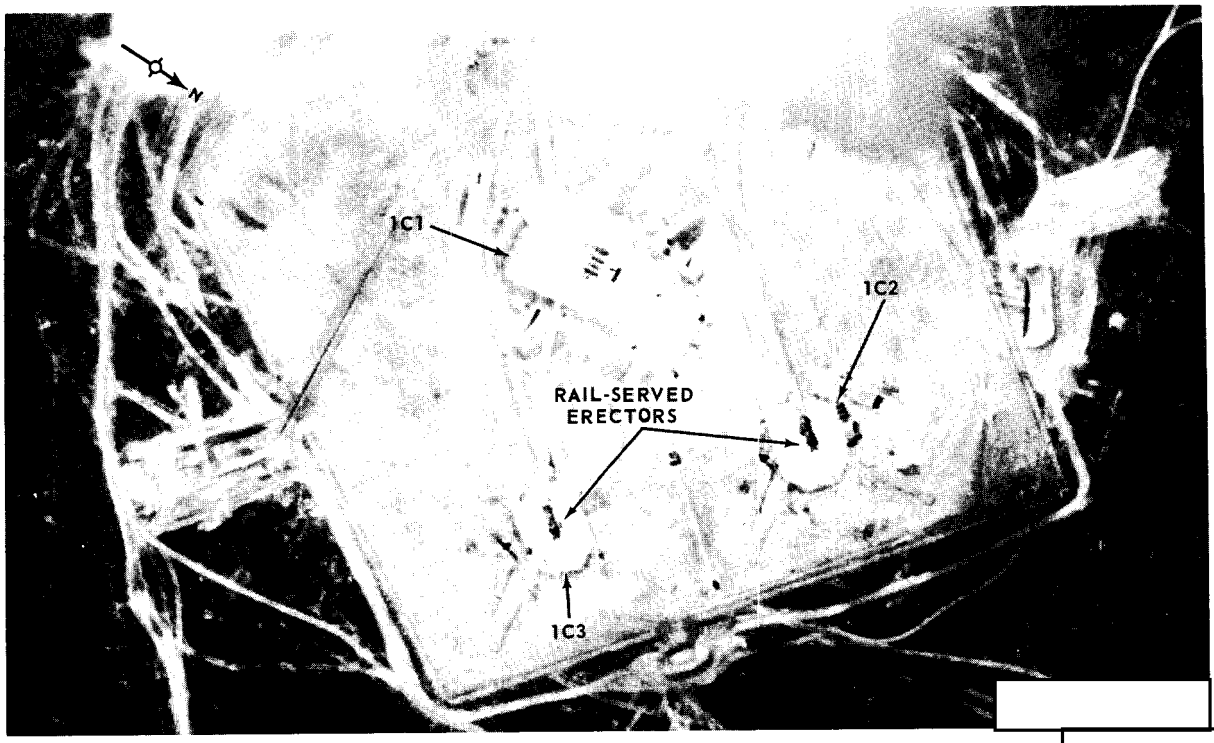


FIGURE 66. LAUNCH AREA 1C, KAPUSTIN YAR.

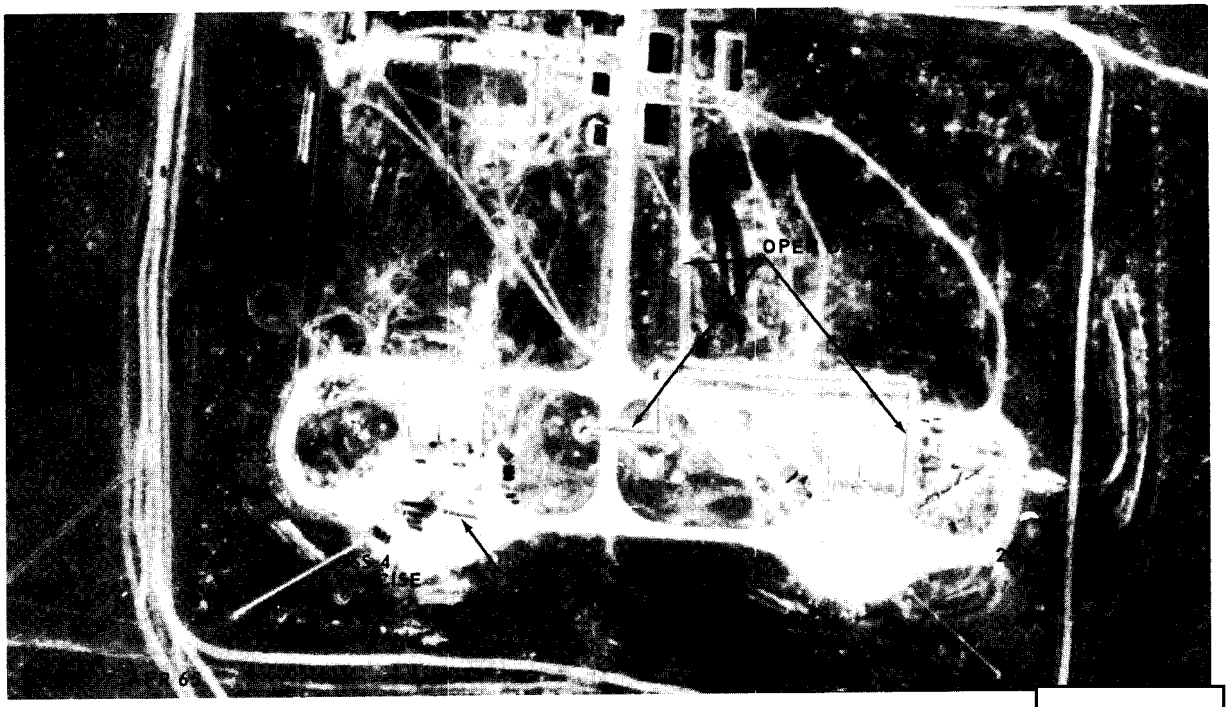
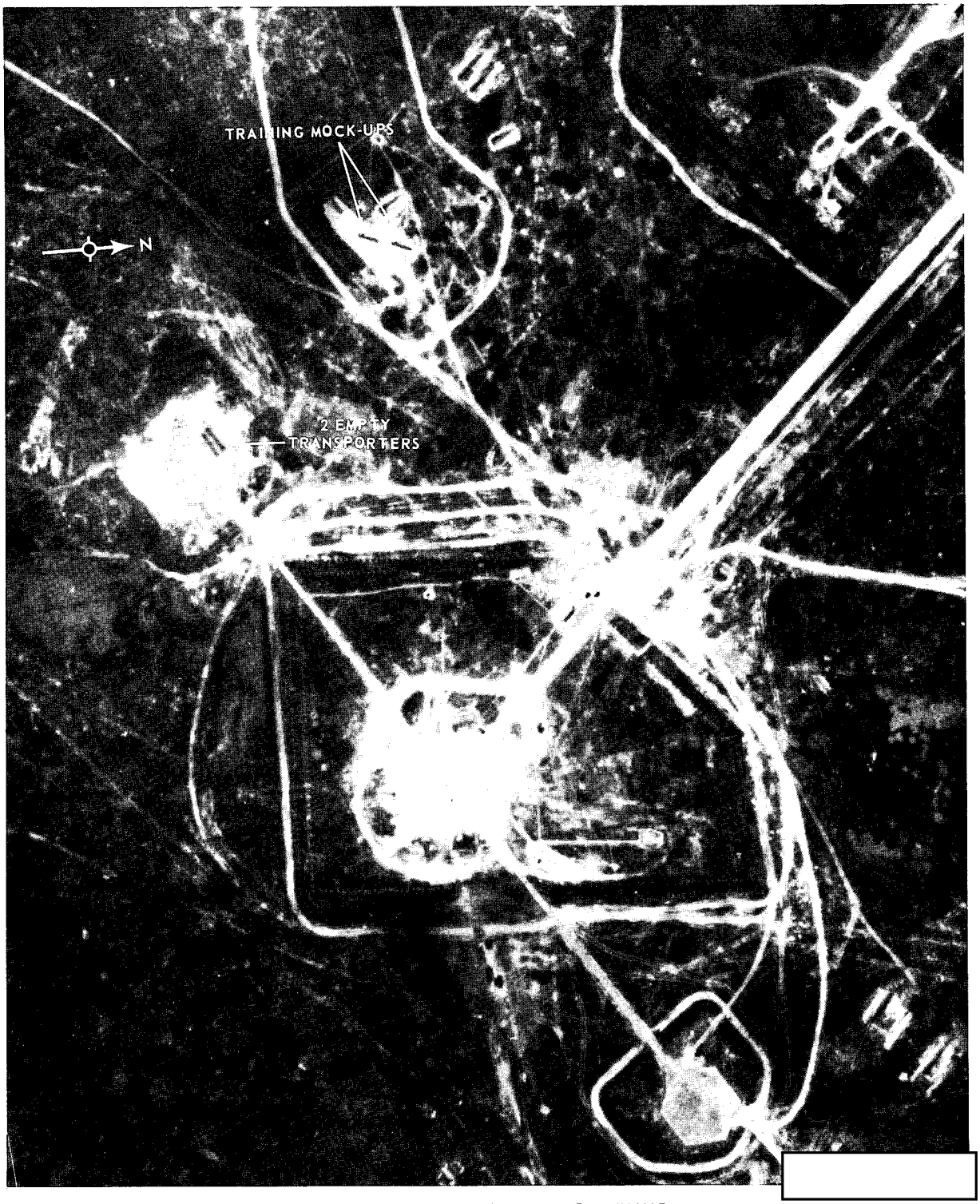


FIGURE 67, LAUNCH AREA 2C, KAPUSTIN YAR.

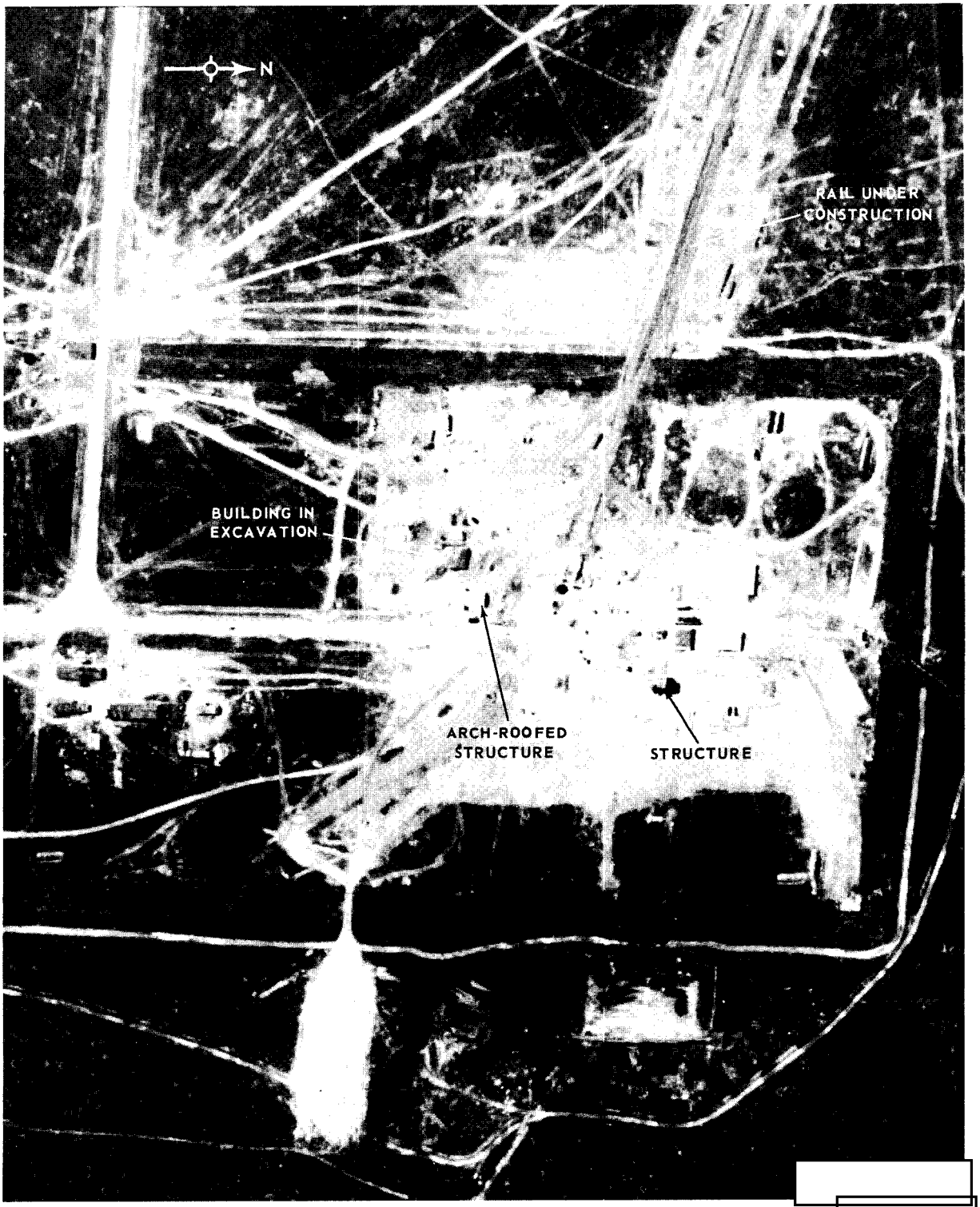


25X1

FIGURE 68. LAUNCH AREA 3C, KAPUSTIN YAR.

25X1

25X1



25X1

25X1

FIGURE 69. LAUNCH SITE 4C1, KAPUSTIN YAR.

25X1

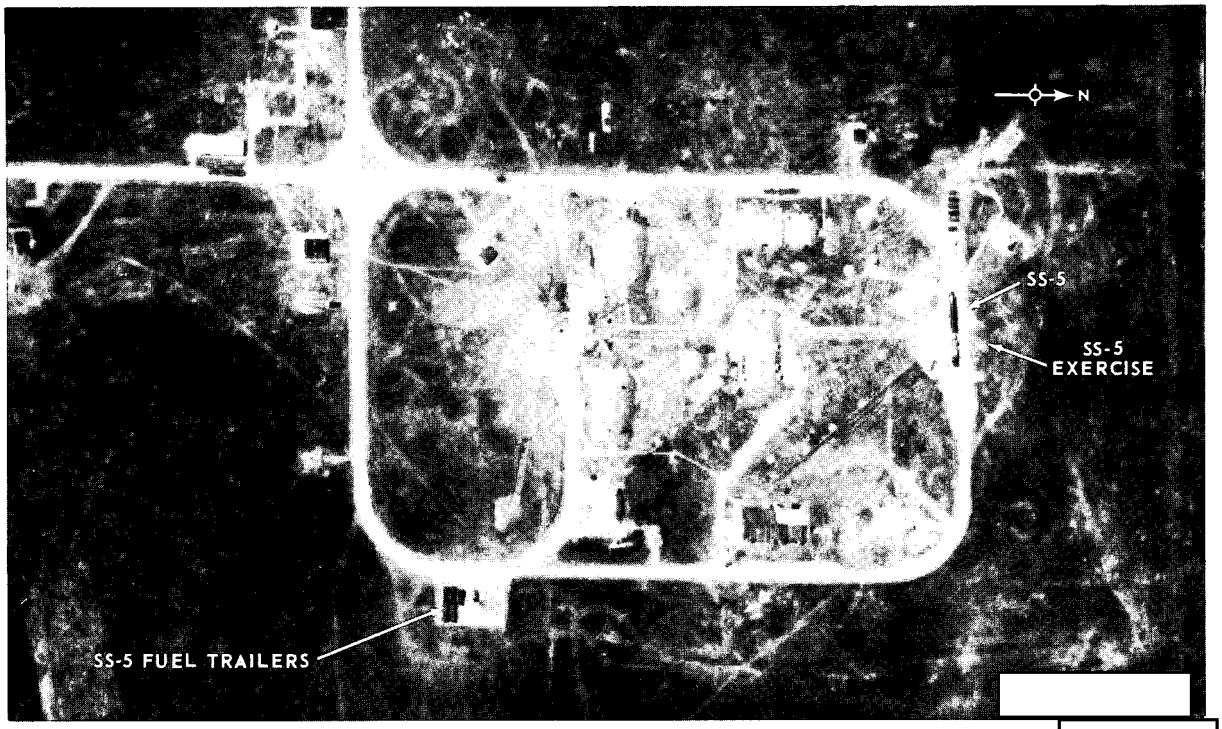


FIGURE 70. LAUNCH SITE 5C1, KAPUSTIN YAR.

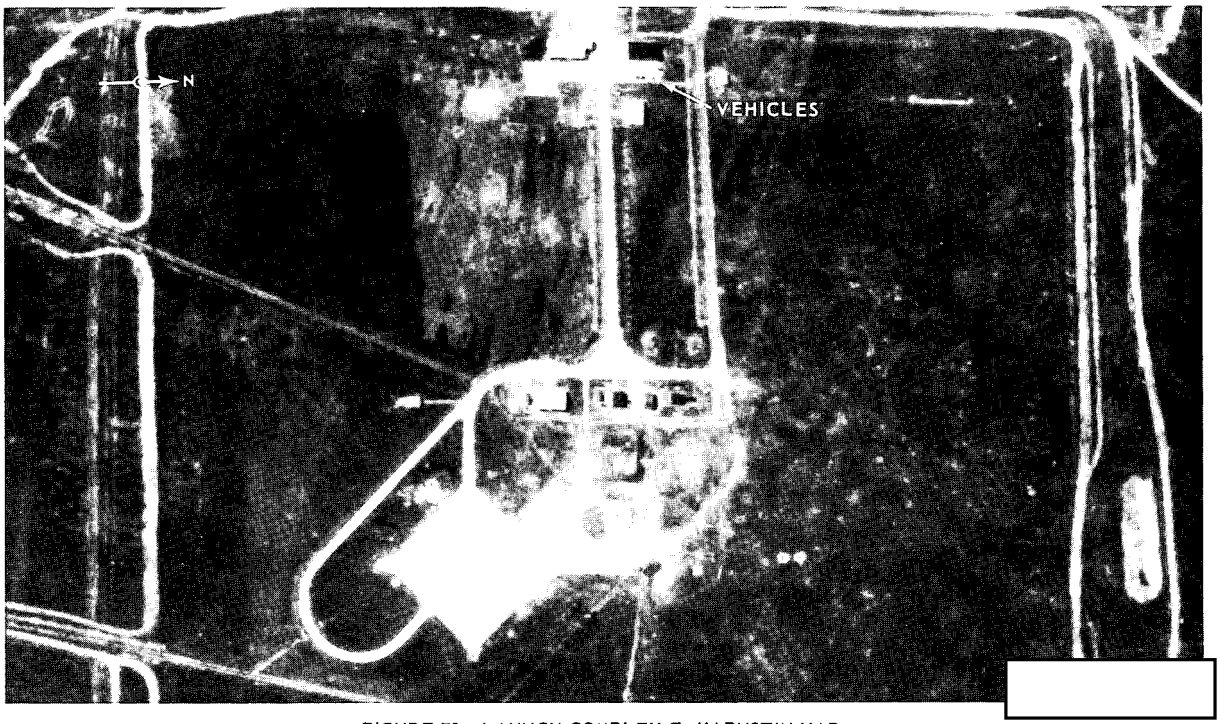
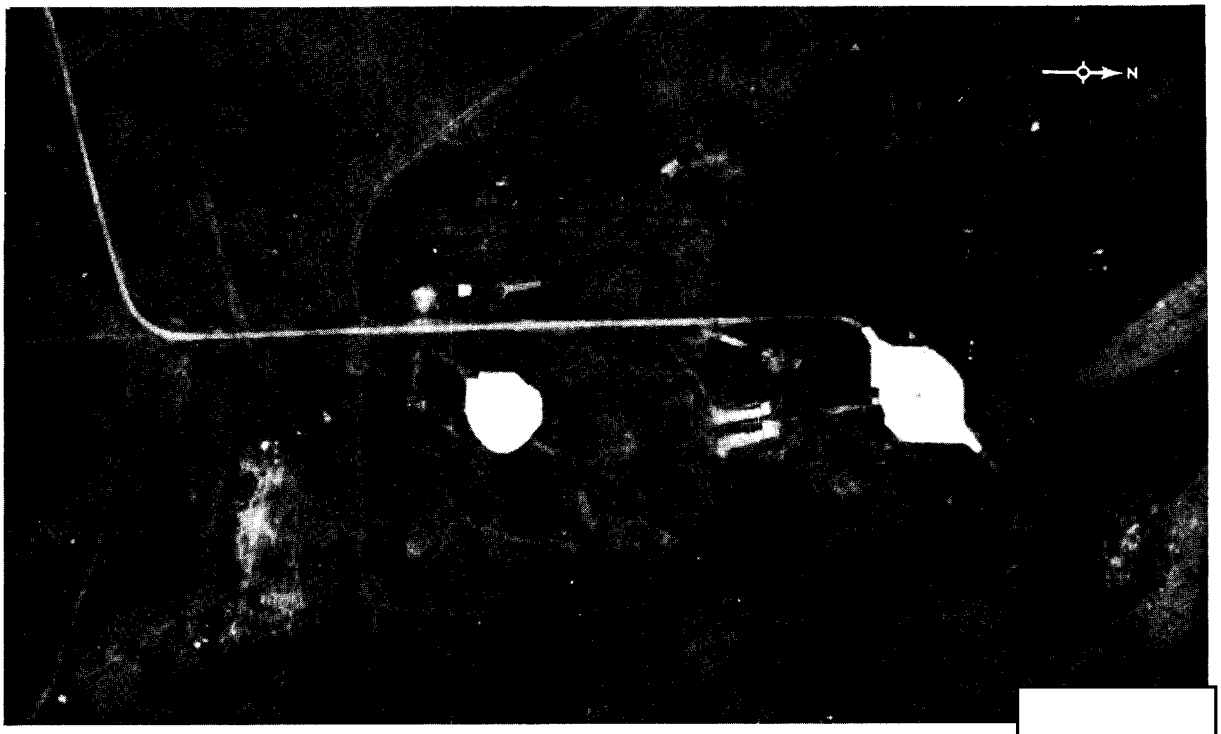


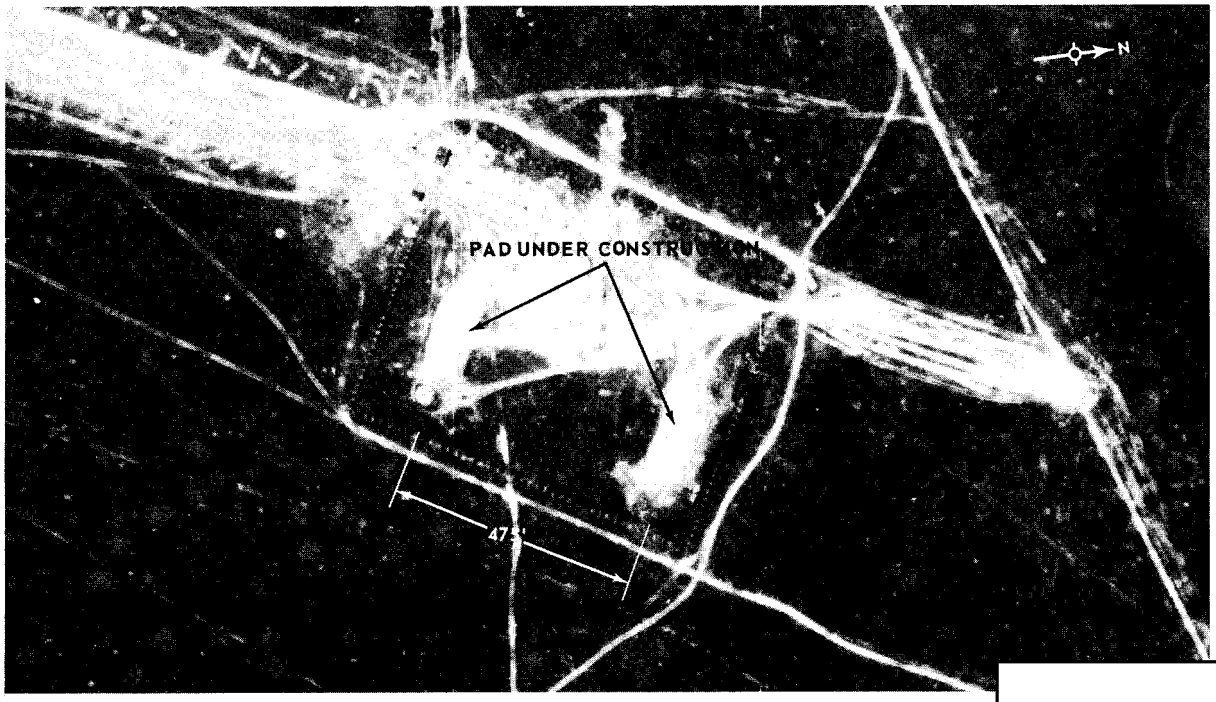
FIGURE 71. LAUNCH COMPLEX E, KAPUSTIN YAR.

25X1



25X1

FIGURE 72. LAUNCH COMPLEX G, KAPUSTIN YAR.



25X1

FIGURE 73. LAUNCH COMPLEX H, KAPUSTIN YAR.

25X1

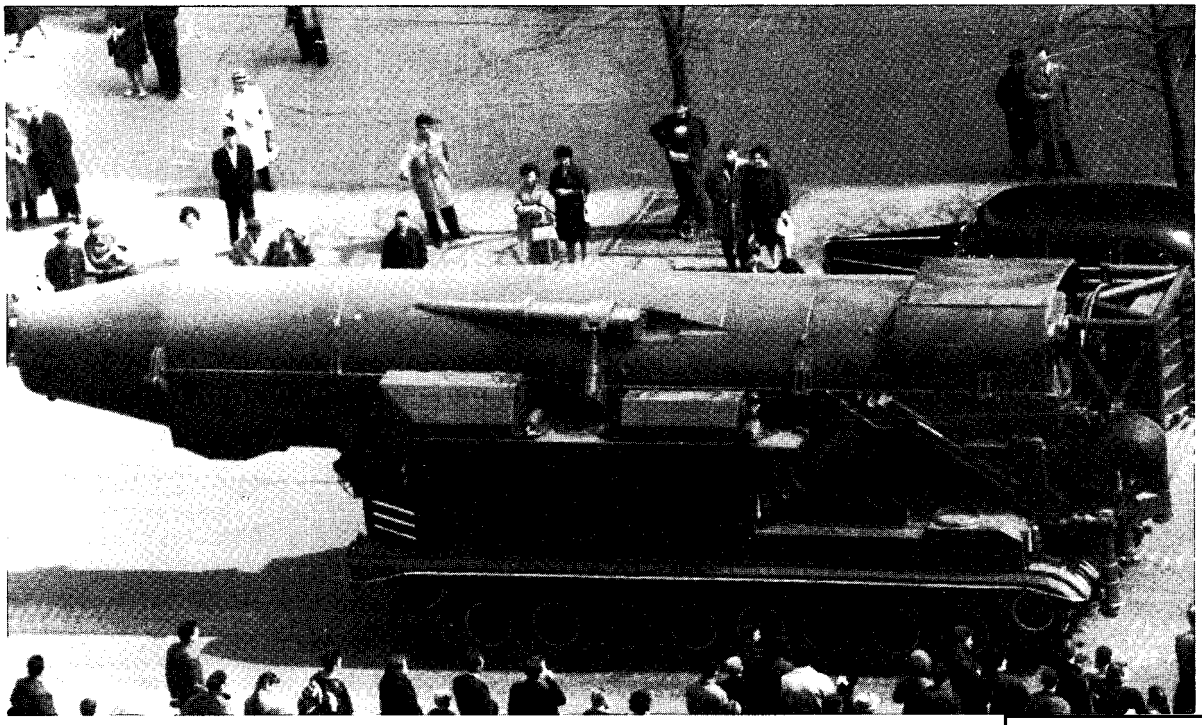


FIGURE 74. SCAMP MISSILE, MOSCOW PARADE, MAY 1965.

TABLE 1. SUMMARY OF ESTIMATED STATUS OF IDENTIFIED ICBM, IRBM, AND MRBM LAUNCHERS AT DEPLOYED COMPLEXES,

Type	Sites	Launchers	Operational	U/C
		ICBM		
IA	3	4	4	0
IB	2	4	0	4
IIA	5	10	10	0
IIB	29	58	58	0
IIC	7	14	14	0
IID	30	60	60	0
IIIA	23	69	69	0
IIIB	3	9	9	0
IIIC**	51	51	0	51
IIID***	90	90	0	90
TOTALS	243	369	224	145

Type	Sites	Launchers	Operational	U/C
		IRBM		
III	15	58	58	0
IV	18	54	51	3
TOTALS	33	112	109	3
		MRBM		
I	84	336	336	0
II	51	204	204	0
IV	21	84	84	0
TOTALS	156	624	624	0
GRAND TOTALS	189	736	733	3

*See Tables 2, 4, and 5 for details. Figures include 3 launch silos at Type IIIA and IIIB ICBM and Type IV IRBM sites, and 4 launch silos at Type IV MRBM sites. Type IIIC and IIID ICBM sites contain single silos.

**Figures do not include 1 site carried in the possible category.

***Figures do not include 10 sites carried in the possible category.

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TABLE 2. SUMMARY EVALUATION OF SOVIET ICBM DEPLOYMENT

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const	1st	2nd	3rd	4th	
ALEYSK																			
Site A(1)		52-27N 82-35E	IIIC		1									Mid			65		U/C
Site B(2)		52-29N 82-40E	IIIC		1									Mid			65		U/C
Site C(3)		52-33N 82-42E	IIIC		1									Mid			65		U/C
Site D(4)		52-32N 82-34E	IIIC		1									Mid	66				U/C
Site E(5)		52-35N 82-30E	IIIC		1									Mid	66				U/C
Site F(6)		52-36N 82-36E	IIIC		1									Mid	66				U/C
DOMBAROVSKIY																			
Site A(4)		51-11N 59-37E	IIIC		1									Mid	66				
Site B(3)		51-06N 59-38E	IIIC		1									Mid	66				U/C
Site C(2)		51-01N 59-41E	IIIC		1									Mid	66				U/C
Site D(1)		50-58N 59-32E	IIIC		1									Mid		66			U/C
Site E(6)		51-04N 59-28E	IIIC		1									Mid		66			U/C
Site F(7)		51-09N 59-31E	IIIC		1									Early		66			U/C
DROVYANAYA																			
Site A(1)		51-25N 113-00E	IIB	2										Complete	63				Operational
Site B(2)		51-25N 113-04E	IIA		3									Complete	64				Operational
Site C(4)		51-28N 113-04E	IID	2										Complete			63		Operational
Site D(3)		51-20N 113-01E	IID	2										Complete					Operational
Site E(5)		51-23N 112-50E	IIA		3									Complete			64		Operational
Site F(6)		51-20N 112-55E	IIA		3									Complete			64		Operational
Group G (7-18)		51-31N 113-04E	IID		10									Mid	66				U/C
Group H(16-26)		51-23N 112-57E	IID		9									Mid	66				U/C
GLADKAYA																			
Site A(3)		56-20N 92-18E	IID	2										Complete					
Site B(2)		56-25N 92-27E	IID	2										Complete	64				Operational
Site D(5)		56-20N 92-13E	IIA		3									Complete			63		Operational
Group F (7-15)		56-13N 92-13E	IID		7									Early			64		Operational
Group G(16-21)		56-15N 91-45E	IID		1									Early		66			U/C
Probable																	65		U/C
IMENI GASTELLO																			
Site A(1)		51-03N 66-06E	IIIC		1									Mid	66				
Site B(2)		51-06N 66-02E	IIIC		1									Mid		66			U/C
Site C(3)		51-10N 66-06E	IIIC		1									Mid		66			U/C
Site D(4)		51-07N 66-13E	IIIC		1									Mid	66				U/C
Site E(5)		51-13N 66-13E	IIIC		1									Mid	66				U/C
Site F(6)		51-13N 66-05E	IIIC		1									Mid		66			U/C
Site G(7)		50-57N 66-09E	IIIC		1									Early					U/C
Site H(8)		50-58N 66-00E	IIIC		1									Early			66		U/C
Site I(9)		50-58N 66-17E	IIIC		1									Early			66		U/C
Site J(10)		50-52N 66-19E	IIIC		1									Early	67				U/C
ITATKA																			
Site A(1)		56-59N 85-32E	IIB	2										Complete					
Site B(2)		57-01N 85-39E	IIB	2										Complete		62			
Site C(3)		56-54N 85-39E	IID	2										Complete	63				Operational
														Complete			63		Operational
KARTALY																			
Site A(1)		53-01N 60-26E	IIIC		1									Mid	66				
Site B(2)		52-56N 60-31E	IIIC		1									Mid	66				U/C
Site C(3)		52-55N 60-24E	IIIC		1									Mid	66				U/C
Site D(4)		52-51N 60-27E	IIIC		1									Mid	66				U/C
Site E(5)		53-00N 60-16E	IIIC		1									Mid	66				U/C
Site F(6)		53-04N 60-18E	IIIC		1									Mid	66				U/C
Site G(7)		53-09N 60-42E	IIIC		1									Early					U/C
Site H(8)		53-08N 60-34E	IIIC		1									Mid			66		U/C
Site I(10) Probable		53-09N 60-25E	IIIC		1									Early			66		U/C
Site J Possible		53-12N 60-39E	IIIC		1									Early			66		U/C

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TABLE 2. SUMMARY EVALUATION OF SOVIET ICBM DEPLOYMENT

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const	1st	2nd	3rd	4th	
KOSTROMA																			
Site A(1)		58-02N 41-22E	IIB	2										Complete		62			Operational
Site B(2)		58-02N 41-07E	IIB	2										Complete			62		Operational
Site C(3)		57-59N 41-09E	IIB	2										Complete					Operational
Site D(4)		58-05N 41-40E	IIB											Complete	63			63	Operational
Site E(5)		57-58N 41-14E	IIIA		3									Complete			63		Operational
Site F(6)		57-55N 41-10E	IID	2										Complete					Operational
Site G(7)		58-06N 41-32E	IID	2										Complete	64				Operational
KOZELSK																			
Site A(3)		53-54N 35-45E	IIC	2										Complete			63		Operational
Site B(2)		53-48N 35-47E	IIC	2										Complete				63	Operational
Site D(4)		53-54N 35-51E	IIC	2										Complete			63		Operational
Site E(5)		53-51N 35-41E	IIIB		3									Complete		64			Operational
Site F(6)		53-41N 35-39E	IIIB		3									Complete				64	Operational
NOVOSIBIRSK																			
Site A(2)		55-19N 83-10E	IIB	2										Complete	63				Operational
Site B(1)		55-19N 83 02E	IIIA		3									Complete		63			Operational
Site C(3)		55-23N 82-54E	IIIA		3									Complete			64		Operational
Site D(4)		55-22N 83-14E	IID	2										Complete				63	Operational
Site E(5)		55-20N 82-56E	IID	2										Complete	64				Operational
OLOVYANNAYA																			
Site A(1)		50-54N 115-48E	IIIA		3									Complete	64				Operational
Site B(2)		50-55N 115-45E	IIIA		3									Complete			64		Operational
Site C(3)		51-01N 115-58E	IIIA		3									Complete			64		Operational
Group D (4-13)		51-04N 116-06E	IIID		10									Late				65	U/C
Group E (14-23)		50-56N 115-58E	IIID		10									Mid		66			U/C
Group F(24) Probab		50-51N 115-51E	IIID		1									Early			66		U/C
Group G(25-27) Probable		50-46N 115-42E	IIID		3									Early				66	U/C
OMSK																			
Site A(1)		55-09N 73-38E	IIIB		3									Complete	64				Operational
PERM																			
Site A(1)		57-41N 56-11E	IIB	2										Complete			62		Operational
Site B(2)		57-44N 55-55E	IIB	2										Complete				62	Operational
Site C(3)		57-38N 56-07E	IIB	2										Complete			63		Operational
Site D(5)		57-42N 55-47E	IID	2										Complete				63	Operational
Site E(5)		57-45N 56-00E	IID	2										Complete	64				Operational
Site F(4)		57-41N 56-04E	IIIA		3									Complete			64		Operational
Group G(7-16)		57-43N 56-07E	IIID		10									Complete				65	U/C
Group H (17) 1/		57-46N 55-49E	IIID		1									Mid		66			U/C
PLESETSK														Early					
Site 1(1)		62-56N 40-27E	IA	2										Complete	60				Operational
Site 2(2)		62-56N 40-32E	IA	1										Complete	60				Operational
Site 3(3)		62-58N 40-41E	IA	1										Complete		60			Operational
Site A(4)		62-59N 40-47E	IIA	2										Complete			61		Operational
Site B(5)		63-03N 40-57E	IIB	2										Complete		62			Operational
Site C(6)		63-01N 40-53E	IIIA		3									Complete	63				Operational
Site D(8)		62-54N 40-47E	IIC	2										Complete			63		Operational
Site E(7)		62-51N 40-35E	IIC	2										Complete			63		Operational
Site F 2/		62-52N 40-44E												Complete					Operational
Site G(9) Probable		62-53N 40-51E	IB	2										Mid				65	U/C
Site H(10) Probable		62-53N 40-52E	IB	2										Mid				65	U/C
SHADRINSK																			
Site A(1)		56-09N 63-51E	IIIA		3									Complete			63		Operational
Site B(2)		56-10N 64-02E	IIIA		3									Complete	64				Operational
Site C(3)		56-07N 63-57E	IIIA		3									Complete				64	Operational

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TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const	1st	2nd	3rd	4th	
SVOBODNYY																			
Site A(3)		51-55N 128-10E	IIB	2										Complete					Operational
Site B(1)		51-49N 128-19E	IIB	2										Complete				62	Operational
Site C(2)		51-53N 128-23E	IIB	2										Complete				62	Operational
Site D(4)		51-58N 128-07E	IID	2										Complete	64				Operational
Site E(6)		51-43N 128-00E	IID	2										Complete				63	Operational
Site F(5)		51-52N 128-13E	IID	2										Complete				63	Operational
Site G(7)		51-38N 127-58E	IIIA		3									Complete				64	Operational
Site H(8)		52-03N 128-06E	IID	2										Complete	64				Operational
TATISHCHEVO																			
Group A(1-11)		51-48N 45-39E	IIID		10									Late				65	U/C
Group B(12-21)		51-33N 45-29E	IIID		10									Mid		66			U/C
Group C(22-27)		51-30N 45-15E	IIID		5									Early		66			U/C
Group D(28-29) 3/		51-29N 45-34E	IIID		3									Early		66			U/C
TEYKOVO																			
Site A(1)		56-55N 40-27E	IIB	2										Complete		62			Operational
Site B(2)		56-56N 40-33E	IIB	2										Complete		62			Operational
Site C(3)		56-55N 40-17E	IIB	2										Complete	63				Operational
Site D(4)		56-59N 40-40E	IID	2										Complete				63	Operational
Site E(5)		56-49N 40-10E	IID	2										Complete				63	Operational
Site F(6)		56-55N 40-22E	IID	2										Complete		64			Operational
TYUMEN																			
Site A(3)		56-52N 65-34E	IIC	2										Complete				63	Operational
Site C(2)		56-51N 65-27E	IIC	2										Complete				63	Operational
UZHUR																			
Site A(1)		55-20N 88-43E	IIIC		1									Mid				65	U/C
Site B(2)		55-18N 89-38E	IIIC		1									Mid				65	U/C
Site C(3)		55-20N 89-33E	IIIC		1									Mid				65	U/C
Site D(4)		55-17N 89-26E	IIIC		1									Mid				65	U/C
Site E(5)		55-13N 89-33E	IIIC		1									Mid				65	U/C
Site F(6)		55-25N 89-39E	IIIC		1									Mid				65	U/C
Site G(7)		55-22N 89-27E	IIIC		1									Early				66	U/C
Site H(8)		55-19N 89-20E	IIIC		1									Mid				66	U/C
Site I (9)		55-13N 89-21E	IIIC		1									Early				66	U/C
Site J(10)		55-12N 89-09E	IIIC		1									Early				66	U/C
Site K(11)		55-16N 89-10E	IIIC		1									Mid				66	U/C
Site L(12)		55-08N 89-37E	IIIC		1									Early	67				U/C
Site M(13) Probable		55-13N 89-42E	IIIC		1									Early	67				U/C
Site N(14)		55-25N 89-15E	IIIC		1									Early				66	U/C
VERKHNYAYA SALD																			
Site A(2)		58-09N 60-16E	IIB	2										Complete	62				Operational
Site B(1)		58-06N 60-21E	IIA	2										Complete				61	Operational
Site C(3)		58-10N 60-28E	IIA	2										Complete				61	Operational
Site D(4)		58-12N 60-34E	IIB	2										Complete		62			Operational
Site E(5)		58-14N 60-55E	IIB	2										Complete				62	Operational
Site F(7)		58-14N 60-41E	IIIA		3									Complete		63			Operational
Site G(8)		58-13N 60-49E	IIIA		3									Complete			63		Operational
Site H(9)		58-05N 60-13E	IID	2										Complete				63	Operational
Site I(10)		58-09N 60-32E	IID	2										Complete				63	Operational
YEDROVO																			
Site A(2)		57-48N 33-36E	IIB	2										Complete			62		Operational
Site B(1)		57-48N 33-14E	IIB	2										Complete				62	Operational
Site C(5)		57-49N 33-08E	IID	2										Complete	64				Operational
Site D(4)		57-48N 33-28E	IID	2										Complete			63		Operational
Site E(8)		57-52N 33-18E	IIIA		3									Complete		63			Operational
Site F(6)		57-44N 33-06E	IID	2										Complete			63		Operational
Site G(7)		57-47N 33-02E	IID	2										Complete	64				Operational
Site I(3)		57-52N 33-27E	IIIA		3									Complete				63	Operational

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TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const	1st	2nd	3rd	4th	
YOSHKAR-OLA																			
Site A(1)		56-35N 48-09E	IIB	2										Complete				25X1	Operational
Site B(2)		56-35N 48-18E	IIB	2										Complete			62		Operational
Site C(3)		56-32N 48-27E	IIB	2										Complete	63				Operational
Site D(4)		56-31N 48-20E	IID	2										Complete			63		Operational
Site E(5)		56-34N 48-13E	IID	2										Complete				63	Operational
Site F(6)		56-36N 48-28E	IID	2										Complete	64				Operational
YURYA																			
Site A(2)		59-10N 49-32E	IIA	2										Complete				61	Operational
Site B(1)		59-09N 49-40E	IIA	2										Complete				61	Operational
Site C(3)		59-13N 49-25E	IIB	2										Complete	62				Operational
Site D(4)		59-16N 49-22E	IIB	2										Complete		62			Operational
Site E(5)		59-23N 49-17E	IIIA		3									Complete				62	Operational
Site F(7)		59-21N 49-14E	IIB	2										Complete	63				Operational
Site G(6)		59-04N 49-51E	IIIA		3									Complete	64				Operational
Site H(8)		59-11N 49-47E	IID	2										Complete				63	Operational
Site I(11)		59-21N 49-25E	IID	2										Complete	64				Operational
Site J(9)		59-06N 49-45E	IID	2										Complete	64				Operational
Site K(10)		59-13N 49-18E	IIIA		3									Complete				64	Operational
ZHANGIZ-TOBE																			
Site A(1)		49-12N 81-00E	IIIC		1													25X1	
Site B(2)		49-16N 80-59E	IIIC		1									Mid				65	U/C
Site C(3)		49-11N 80-54E	IIIC		1									Mid				65	U/C
Site D(4)		49-10N 81-04E	IIIC		1									Mid				65	U/C
Site E(5)		49-06N 81-03E	IIIC		1									Mid		66			U/C
Site F(6)		49-08N 80-58E	IIIC		1									Mid		66			U/C
	Totals			243	150	219								Early		66			U/C

*TDI site designators are indicated in parentheses.

1/ See text, page 9

2/ Not considered an operational ICBM site (see 16th Revision).

3/ See text, page 9

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TABLE 3. SUMMARY EVALUATION OF LAUNCH FACILITIES, TYURATAM MISSILE TEST CENTER

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const	
Complex A1(1)		45-55N 63-21E	I	1										Complete	Operational
A2		45-55N 63-21E	I	1										Complete	Operational
A3(15)		45-54N 63-20E	IIIC ρ		1									Late	U/C
A4			I	1										Complete	Operational
Complex B1(2)		46-00N 63-34E	IA ρ	1										Complete	Operational
B2(16)		45-59N 63-33E	IIIC		1									Late	U/C
B3(17)		46-00N 63-34E	II	1										Complete	Operational
Complex C1(3)		45-48N 63-39E	II ρ	1										Complete	Operational
C2		45-48N 63-39E	II	1										Complete	Operational
C3		45-48N 63-39E	II	1										Complete	Operational
Complex D1(4)		45-59N 63-57E	IIIA ρ		3									Complete	Operational
D2(9)		45-59N 63-57E	IIIA		3									Complete	Operational
Complex E1(6)		45-48N 63-12E	IIC ρ	1										Complete	Operational
E2		45-48N 63-12E	IIC	1										Complete	Operational
E3		45-48N 63-12E	IIC	1										Complete	Operational
Complex F(5)		46-02N 63-06E	IIIB ρ		3									Complete	Operational
Complex G1/G2(7)		46-03N 62-56E	I	2										Complete	Operational
G3/G4(11)		46-03N 62-56E	I	2										Complete	Operational
G5/G6(12)		46-05N 62-54E	II	2										Complete	Operational
G7(18)		46-04N 62-56E	IIIC ρ		1									Mid	U/C
G8/G9(19)		46-04N 62-57E	III		2									Complete	Operational
Complex H(8)		45-59N 63-42E	I	2										Complete	Operational
Complex I(14)		45-56N 63-26E	IIIC ρ		1									Late	U/C
Complex J		45-54N 63-64E	I	2										Early	U/C
Complex K1/K2 (13)		46-02N 63-03E	IIIC ρ		2									Mid	U/C
K3(20)		46-02N 63-02E	IIID ρ		1									Late	U/C
Launch Group L (21-30		46-03N 62-59E	III		10									Late	U/C
Total				21	28										

*TDI site designators are indicated in parentheses.

ρ Prototype.

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TABLE 4. SUMMARY EVALUATION OF SOVIET IRBM DEPLOYMENT

LOCATION*	BE NUMBER	COORDINATES		TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
AKTYUBINSK Launch Complex							
PETROVSKIY		50-00-30N	56-58-00E	IV	3		Complete
BELOMORSK Launch Complex							
RAMOYE		64-25-45N	34-18-15E	III	4		Complete
FEDOROVKA Launch Complex							
TRAKTOVYY		53-25-15N	62-23-00E	III	4		Complete
GELLI Launch Complex							
KAKASHURA		42-38-45N	47-27-00E	IV	3		Complete
GELLI		42-26-30N	47-28-30E	IV	3		Complete
PARAUL		42-47-30N	47-23-00E	IV	3		Complete
GRANOV Launch Complex							
GRANOV 1		48-56-15N	29-30-15E	III	4		Complete
GRANOV 2		48-50-00N	29-28-45E	IV	3		Complete
KALNIK		48-59-30N	29-21-45E	IV	3		Complete
KROLEVETS Launch Complex							
KROLEVETS 1		51-36-45N	33-29-30E	III	4		Complete
KROLEVETS 2		51-40-45N	33-31-15E	III	4		Complete
BEREZA		51-43-45N	33-43-45E	III	2		Complete
LEBEDIN Launch Complex							
LEBEDIN 1		50-33-00N	34-25-45E	III	4		Complete
LEBEDIN 2		50-35-45N	34-24-30E	III	4		Complete
LEBEDIN 3		50-38-00N	34-27-30E	III	4		Complete
NIGRANDE Launch Complex							
NIGRANDE		56-31-00N	22-02-15E	III	4		Complete
SKRUNDA		56-35-30N	21-49-15E	IV	3		Complete
VAINODE		56-28-30N	21-50-15E	IV	3		Complete
NOVOSYSOYEVKA Launch Complex							
NOVOSYSOYEVKA 1		44-11-45N	133-26-15E	III	4		Complete
NOVOSYSOYEVKA 2		44-07-15N	133-28-30E	IV	3		Complete
PERVOMAYSK Launch Complex							
KAMENNYY MOST		47-58-00N	30-53-15E	IV	3		Complete
SEMENOVKA 1		47-58-45N	30-59-00E	IV	3		Complete
SEMENOVKA 2		47-53-30N	30-58-45E	IV	3		Complete

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TABLE 4. (Continued)

LOCATION*	BE NUMBER	COORDINATES		TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
SARY OZEK Launch Complex							
KARA BABAU 1		44-32-00N	77-46-15E	III	4		Complete
KARA BABAU 2		44-31-00N	77-58-45E	IV	3		Complete
KARA BABAU 3		44-30-15N	77-41-15E	IV	3		Complete
SMORGON Launch Complex							
SMORGON 1		54-31-45N	26-17-30E	III	4		Complete
SMORGON 2		54-26-00N	26-18-30E	IV	3		Complete
SMORGON 3		54-36-15N	26-22-30E	III	4		Complete
TAYBOLA Launch Complex							
TAYBOLA 1		68-28-00N	33-15-30E	IV	3		Complete
TAYBOLA 2		68-30-30N	33-23-15E	IV	3		Complete
TAYBOLA 3		68-26-00N	33-29-15E	IV	3		Undetermined
ZHURAVKA Launch Complex							
ZHURAVKA		54-36-30N	76-39-45E	III	4		Complete

*TDI site designators have been adopted for IRBM launch sites.

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TABLE 5. SUMMARY EVALUATION OF SOVIET MRBM DEPLOYMENT

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
AKHTYRKA Launch Complex						
AKHTYRKA 1		50-16-00N 34-50-15E	II	4		Complete
AKHTYRKA 2		50-22-00N 34-57-00E	II	4		Complete
AI UKSNE Launch Complex						
LEJASCIEMS 1		57-21-00N 26-44-45E	II	4		Complete
RUSKI		57-25-15N 26-50-00E	II	4		Complete
LEJASCIEMS 2		57-13-00N 26-33-30E	IV	4		Complete
ANASTASYEVKA Launch Complex						
ANASTASYEVKA 1		48-34-15N 135-37-45E	II	4		Complete
ANASTASYEVKA 2		48-35-45N 135-41-00E	II	4		Complete
BALTA Launch Complex						
BALTA 1		48-01-45N 29-34-00E	II	4		Complete
BALTA 2		48-07-00N 29-34-30E	II	4		Complete
BARANO-ORENBURGSKOYE Launch Complex						
SOFIYE ALEKSEYEVSKOYE		44-16-15N 131-22-30E	I	4		Complete
BARANO-ORENBURGSKOYE		44-19-45N 131-30-45E	I	4		Complete
BELOKOROVICHI Launch Complex						
OLEVSK 1		51-08-45N 28-03-15E	I	4		Complete
OLEVSK 2		51-10-30N 27-59-30E	I	4		Complete
RUDNYA ZLOTINSKAYA		51-03-30N 28-07-30E	IV	4		Complete
BORSHCHEV Launch Complex						
SKALA PODOLSKAYA 1		48-51-00N 26-08-30E	I	4		Complete
SKALA PODOLSKAYA 2		48-52-45N 26-03-30E	I	4		Complete
BREST Launch Complex						
BREST 1		51-48-45N 24-00-45E	II	4		Complete
BREST 2		51-51-45N 24-01-45E	II	4		Complete
BRODY Launch Complex						
BRODY 1		50-06-00N 25-12-15E	IV	4		Complete
BRODY 2		50-12-46N 25-05-00E	I	4		Complete
BERESTECHKO		50-20-00N 25-05-30E	I	4		Complete
DERAZHNYA Launch Complex						
DERAZHNYA 1		49-21-00N 27-26-30E	II	4		Complete
DERAZHNYA 2		49-26-15N 27-29-00E	II	4		Complete
KHMELNITSKIY		49-24-45N 27-08-45E	IV	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
DISNA Launch Complex						
DISNA		55-35-15N 28-16-00E	I	4		Complete
ZELKI		55-35-45N 28-24-30E	I	4		Complete
BORKOVICHI		55-41-45N 28-27-00E	II	4		Complete
DOLINA Launch Complex						
DOLINA 1		49-03-30N 24-03-30E	I	4		Complete
DOLINA 2		49-06-15N 24-08-30E	I	4		Complete
BOLEKHOV		49-06-45N 23-51-15E	IV	4		Complete
DROGOBYCH Launch Complex						
MEDENITSA		49-22-15N 23-45-30E	I	4		Complete
DROGOBYCH		49-25-30N 23-34-45E	I	4		Complete
STRYY		49-16-45N 23-43-00E	IV	4		Complete
DYATLOVO Launch Complex						
DYATLOVO		53-32-45N 25-16-45E	I	4		Complete
BEREZOVKA		53-35-30N 25-17-30E	I	4		Complete
ZBLYANY		53-35-45N 25-27-30E	II	4		Complete
GOMEL Launch Complex						
BORKHOV 1		52-18-30N 30-42-45E	II	4		Complete
BORKHOV 2		52-24-45N 30-39-00E	II	4		Complete
GRESK Launch Complex						
GRESK 1		53-14-15N 27-42-30E	I	4		Complete
GRESK 2		53-17-00N 27-40-45E	I	4		Complete
URECHYE		53-11-00N 27-58-30E	II	4		Complete
GROZNYY Launch Complex						
SUNZHENSKOYE		43-08-15N 44-54-15E	I	4		Complete
NESTEROVSKAYA		43-11-30N 44-57-00E	I	4		Complete
ACHKHOY-MARTAN		43-10-30N 45-10-30E	IV	4		Complete
GUSEV Launch Complex						
GUSEV 1		54-41-30N 22-05-00E	I	4		Complete
GUSEV 2		54-44-00N 22-03-30E	I	4		Complete
GVARDEYSK Launch Complex						
GVARDEYSK 1		54-40-30N 21-07-30E	I	4		Complete
GVARDEYSK 2		54-45-15N 21-09-15E	I	4		Complete
JELGAVA Launch Complex						
IECAVA 1		56-35-30N 24-04-00E	II	4		Complete
IECAVA 2		56-39-45N 24-07-30E	II	4		Complete
IECAVA 3		56-33-00N 24-20-30E	IV	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
JONAVA Launch Complex						
KARMELAVA		54-57-15N 24-05-45E	II	4		Complete
JONAVA		55-01-00N 24-14-15E	II	4		Complete
KAMENETS-PODOLSKIY Launch Complex						
KAMENETS-PODOLSKIY		48-51-15N 26-42-30E	II	4		Complete
DUNAYEVTSY		48-55-15N 26-59-00E	II	4		Complete
KIVERTSY Launch Complex						
KIVERTSY 1		50-53-15N 25-31-00E	I	4		Complete
KIVERTSY 2		50-56-00N 25-36-15E	I	4		Complete
TROSTYANETS		50-58-30N 25-39-30E	II	4		Complete
KONKOVICHI Launch Complex						
PETRIKOV		52-10-30N 28-34-45E	I	4		Complete
KONKOVICHI		52-15-30N 28-37-45E	I	4		Complete
KOROSTEN Launch Complex						
KOROSTEN 1		50-51-45N 28-18-15E	II	4		Complete
KOROSTEN 2		50-52-15N 28-31-00E	II	4		Complete
KOZHANOVICHI Launch Complex						
KOZHANOVICHI 1		52-10-15N 27-51-30E	I	4		Complete
KOZHANOVICHI 2		52-11-30N 27-48-00E	I	4		Complete
KRASKINO Launch Complex						
KRASKINO		42-44-00N 130-40-15E	II	4		Complete
KRASNOZNAMENSK Launch Complex						
VIESVILLE		55-01-30N 22-23-00E	I	4		Complete
RAGNIT		55-01-15N 22-11-15E	I	4		Complete
KREMOVO Launch Complex						
KREMOVO		44-01-24N 132-20-39E	I	4		Complete
LYALICHI		44-02-30N 132-26-26E	I	4		Complete
KURGANCHA Launch Complex						
KURGANCHA 1		39-37-45N 65-57-30E	I	4		Complete
KURGANCHA 2		39-37-30N 65-57-00E	I	4		Complete
TYM		39-35-15N 65-42-45E	IV	4		Complete
LIDA Launch Complex						
LIDA 1		53-47-30N 25-20-30E	I	4		Complete
LIDA 2		53-57-15N 25-27-45E	I	4		Complete

TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
LUTSK Launch Complex						
LUTSK 1		50-46-45N 25-03-00E	I	4		Complete
LUTSK 2		50-50-30N 25-04-15E	I	4		Complete
VLADIMIR-VOLYNSKIY		50-48-30N 24-42-30E	IV	4		Complete
MARINA GORKA Launch Complex						
MARINA GORKA		53-26-30N 27-45-30E	II	4		Complete
MAYKOP Launch Complex						
KURDZHIPSKAYA		44-31-45N 40-00-45E	II	4		Complete
SHIRVANSKAYA		44-25-30N 39-54-00E	IV	4		Complete
MOLOSKOVITSY Launch Complex						
MOLOSKOVITSY 1		59-28-45N 29-06-00E	II	4		Complete
MOLOSKOVITSY 2		59-29-30N 29-12-15E	II	4		Complete
GURLEVO		59-25-00N 28-53-15E	IV	4		Complete
MUKACHEVO Launch Complex						
MUKACHEVO 1		48-18-45N 22-30-45E	I	4		Complete
MUKACHEVO 2		48-19-30N 22-37-15E	I	4		Complete
NADVORNAYA Launch Complex						
PARYSHCHE		48-37-45N 24-42-00E	I	4		Complete
NOVA VES		48-39-30N 24-48-15E	I	4		Complete
OTYNYA		48-47-30N 24-50-30E	IV	4		Complete
OSTROG Launch Complex						
OSTROG 1		50-14-00N 26-43-15E	I	4		Complete
OSTROG 2		50-17-15N 26-41-00E	I	4		Complete
OSTROV Launch Complex						
ASANOVSHCHINA		57-31-45N 28-12-15E	I	4		Complete
SHEVELEVO		57-37-00N 28-12-15E	I	4		Complete
REDKINO		57-24-30N 28-26-00E	IV	4		Complete
PAPLAKA Launch Complex						
PAPLAKA 1		56-24-00N 21-17-30E	I	4		Complete
PAPLAKA 2		56-25-00N 21-16-45E	I	4		Complete
PINSK Launch Complex						
IVANOVO		52-10-45N 25-41-15E	I	4		Complete
MOTOL		52-12-30N 25-44-30E	I	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
POLOTSK Launch Complex						
POLOTSK 1		55-22-30N 28-44-30E	II	4		Complete
POLOTSK 2		55-24-15N 28-33-45E	II	4		Complete
POSTAVY Launch Complex						
POSTAVY 1		55-09-45N 26-53-45E	II	4		Complete
KOZYANY		55-20-30N 26-51-30E	II	4		Complete
POSTAVY 2		55-06-15N 27-00-15E	IV	4		Complete
PRUZHANY Launch Complex						
PRUZHANY 1		52-30-30N 24-08-45E	II	4		Complete
PRUZHANY 2		52-33-30N 24-06-15E	II	4		Complete
RAKVERE Launch Complex						
SIMUNA		59-08-45N 26-26-45E	II	4		Complete
VAIKE MAARJA		59-11-15N 26-20-45E	II	4		Complete
RISTI Launch Complex						
RISTI 1		59-04-00N 24-04-30E	I	4		Complete
RISTI 2		59-07-45N 24-06-45E	I	4		Complete
RUZHANY Launch Complex						
KRUPA 1		52-47-45N 24-42-30E	II	4		Complete
KRUPA 2		52-49-15N 24-45-30E	II	4		Complete
SATEIKIAI Launch Complex						
SALANTAI 1		55-59-45N 21-38-15E	I	4		Complete
SALANTAI 2		56-02-15N 21-41-30E	I	4		Complete
ZEMAICIU KALVARIJA		56-01-45N 21-54-30E	IV	4		Complete
SIMFEROPOL Launch Complex						
MAZANKA		44-53-45N 34-20-00E	I	4		Complete
VALKI		44-57-00N 34-26-00E	I	4		Complete
SLONIM Launch Complex						
BYTEN 1		52-52-30N 25-21-30E	I	4		Complete
BYTEN 2		52-55-45N 25-22-15E	I	4		Complete
SOKAL Launch Complex						
SOKAL 1		50-22-45N 24-18-15E	I	4		Complete
SOKAL 2		50-27-15N 24-20-00E	I	4		Complete
SOKAL 3		50-20-15N 24-26-15E	IV	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
SOVETSK Launch Complex						
SLAVSK 1		54-59-15N 21-36-30E	I	4		Complete
SLAVSK 2		54-59-45N 21-28-30E	I	4		Complete
SUCHAN Launch Complex						
NOVITSKOYE		43-01-45N 133-17-00E	I	4		Complete
SEVERNYY SUCHAN		43-10-00N 133-20-05E	I	4		Complete
TAURAGE Launch Complex						
TAURAGE 1		55-10-15N 22-20-30E	I	4		Complete
TAURAGE 3		55-05-00N 22-20-00E	I	4		Complete
TORVA Launch Complex						
TORVA 1		57-56-00N 26-04-00E	I	4		Complete
TORVA 2		57-59-15N 26-05-00E	I	4		Complete
TSIRGULIINA		57-49-45N 26-12-30E	IV	4		Complete
UGOLNYY Launch Complex						
UGOLNYY		64-47-32N 177-56-15E	II	4		Complete
UKMERGE Launch Complex						
VEPRIAI		55-07-45N 24-38-30E	I	4		Complete
UKMERGE		55-11-00N 24-42-30E	I	4		Complete
UMAN Launch Complex						
MOLODETSKOYE		48-53-45N 30-27-45E	I	4		Complete
MANKOVKA		48-57-45N 30-23-45E	I	4		Complete
KISHENTSY		49-00-15N 30-13-45E	IV	4		Complete
USOVO Launch Complex						
OVRUCH 1		51-17-15N 28-16-15E	I	4		Complete
OVRUCH 2		51-18-30N 28-10-30E	I	4		Complete
LIPNIKI		51-12-15N 28-26-30E	II	4		Complete
UZHGOROD Launch Complex						
UZHGOROD		48-33-30N 22-13-15E	II	4		Complete
VORU Launch Complex						
VORU 1		57-46-00N 26-47-15E	II	4		Complete
VORU 2		57-49-00N 26-50-30E	II	4		Complete
VSELYUB Launch Complex						
VSELYUB 1		53-45-45N 25-43-00E	I	4		Complete
VSELYUB 2		53-48-00N 25-46-45E	I	4		Complete

TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR STATUS
YELSK Launch Complex						
YELSK 1		51-42-30N 29-12-30E	I	4		Complete
YELSK 2		51-47-15N 29-18-15E	I	4		Complete
ZAGARE Launch Complex						
ZAGARE 1		56-23-15N 23-19-15E	I	4		Complete
ZAGARE 2		56-29-00N 23-20-45E	I	4		Complete
LIELELEJA		56-24-30N 23-36-45E	IV	4		Complete
ZHITOMIR Launch Complex						
ZHITOMIR 1		50-04-45N 28-15-45E	II	4		Complete
ZHITOMIR 2		50-10-00N 28-16-15E	II	4		Complete
BERDICHEV		50-05-30N 28-22-00E	II	4		Complete
ZHMERINKA Launch Complex						
GNIVAN		49-09-00N 28-11-45E	II	4		Complete
ZHMERINKA		49-10-15N 28-05-00E	II	4		Complete
VINNITSA		49-17-30N 28-20-15E	IV	4		Complete
ZNAMENSK Launch Complex						
ZNAMENSK 1		54-32-45N 21-11-15E	I	4		Complete
ZNAMENSK 2		54-35-15N 21-07-30E	I	4		Complete

*TDI site designators have been adopted for MRBM launch sites.

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Table 6. Summary Evaluation of Selected Launch Facilities, Kapustin Yar Missile Test Center

Complex/Area/Site	BE Number	Coordinates	Type of Site	Number of Positions		Site Negated		First Coverage		Latest Coverage		Stage of Construction on Last Usable Coverage			Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const	
Complex A															
Launch Site 1A1		48-42N 46-15E	R&D	1	--									Complete	Operational
Launch Site 1A2			R&D/Trng	1	--									Complete	Operational
Launch Site 2A1			R&D	--	1									Complete	Operational
Launch Site 2A2			R&D	--	1									Inactive	Inactive
Complex C															
Launch Site 1C1		48-36N 46-17E	Space R&D*	1	--									Complete	Operational
Launch Site 1C2			Probable Space	1	--									Complete	Operational
Launch Site 1C3			Probable Space	1	--									Complete	Operational
Launch Area 2C		48-35N 46-17E	R&D/Trng	2	--									Complete	Operational
Launch Area 3C		48-34N 46-17E	R&D/Trng	1	--									Complete	Operational
Launch Site 4C1		48-34N 46-17E	Type IV MRBM $_p$	--	4									Complete, being modified	Undetermined
Launch Site 4C2		48-33N 46-17E	Type IV IRBM $_p$	--	3									Complete	Operational
Launch Site 5C1		48-32N 46-17E	Undet	2	--									Complete	Operational
Launch Site 5C2		48-32N 46-17E	--	2	--									Never completed	Abandoned
Complex E		48-46N 46-18E	Undet	1	--									Complete	Operational
Complex G		48-24N 46-17E	Trng	2	--									Complete	Operational
Complex H		48-48N 46-20E	Undet	2	--									Mid	U/C

*R&D/Trng site on first coverage,
$_p$ Prototype.

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TABLE 7. SUMMARY EVALUATION OF SOVIET FIXED FIELD SITES (SSM FIXED FIELD POSITIONS)

LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
AKHTYRKA					
Akhtyrka		50-19-30N 34-51-30E			4
ALUKSNE					
Lejasciems		57-15-15N 26-41-15E			4
ANASTASYEVKA					
Anastasyevka		48-32-15N 135-31-45E			4
BARANO-ORENBURGSKOYE					
Sofiye Alekseyevskoye		44-12-00N 131-24-00E			3
BELOKOROVICHI					
Rudnya Zlotinskaya		51-08-30N 27-59-45E			4
BORSHCHEV					
Skalapodolskaya 1		48-53-30N 026-13-30E			4
Skalapodolskaya 2		48-52-30N 026-16-00E			4
BREST					
Pishcha		51-35-15N 23-46-45E			4
Zamshany		51-50-05N 24-02-05E			4
BRODY					
Yazlovchik		50-05-45N 25-02-00E			4
Stanislavchik		50-07-00N 24-56-30E			4
DERAZHNYA					
Khmelnitskiy		49-25-00N 27-06-30E			2
Letichev 1		49-22-45N 27-43-45E			4
Letichev 2		49-25-15N 27-45-00E			2
DISNA					
Dernovichi		55-47-45N 28-20-00E			4
Demidovo		56-01-15N 28-18-45E			4
DOLINA					
Berezhnitsa		49-12-45N 23-57-30E			4
Rakuv		48-58-21N 24-05-35E			4
DYATLOVO					
Ruda Yavorskaya 1		53-23-15N 25-10-30E			4
Ruda Yavorskaya 2		53-23-15N 25-12-45E			5
Ruda Yavorskaya 3		53-23-15N 25-13-30E			4
GOMEL					
Gomel		52-20-45N 30-51-30E			4

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TABLE 7. (Continued)

LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
GUSEV					
Tolmingkemsk		54-22-15N 22-20-15E			4
GVARDEYSK					
Geroyskoye		54-45-45N 21-25-15E			2
Vysokoye		54-44-30N 21-33-45E			4
JELGAVA					
Jelgava 1		56-38-45N 23-52-45E			2
Jelgava 2		56-44-15N 23-55-15E			4
JONAVA					
Kaisiadorys		54-59-30N 24-29-00E			4
KAMENETS-PODOLSKIY					
Yarmolintsy		49-12-00N 26-46-45E			4
Vinkovtsy		48-58-20N 27-12-05E			1
KIVERTSY					
Kivertsy		50-50-00N 25-25-00E			4
KONKOVICHI					
Novoselki 1		52-23-00N 28-42-45E			4
Novoselki 2		52-25-45N 28-41-00E			4
KOROSTEN					
Litki 1		51-01-30N 28-27-45E			4
Yemilchino 1		50-52-30N 27-53-00E			4
Yemilchino 2		50-52-00N 27-53-00E			4
Litki 2		51-01-15N 28-24-15E			2
KRASNOZNAMENSK					
Krasnoznamensk		54-57-30N 22-35-00E			4
Sudargas		55-00-30N 22-35-00E			4
KREMOVO					
Manzovka		44-12-00N 132-34-00E			4
KURGANCHA					
Kurgancha		39-41-00N 65-59-00E			4
LIDA					
Vasilishki		53-44-00N 24-56-15E			4
LUTSK					
Gorokhov		50-35-45N 24-48-45E			4

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TABLE 7. (Continued)

LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
MARINA GORKA					
Shotsk		53-27-45N 27-48-00E			4
MAYKOP					
Tulskaya		49-31-15N 40-14-15E			4
Maykop		44-32-30N 39-57-45E			4
MOLOSKOVITSY					
Kotly		59-37-45N 28-41-30E			4
NADVORNAYA					
Ivanovtsy		48-38-00N 24-54-15E			4
OSTROG					
Slavuta		50-16-45N 26-57-45E			2
Shepetovka		50-12-30N 26-59-00E			4
OSTROV					
Shabany		57-23-45N 28-13-15E			4
PINSK					
Lychkovtsy		52-15-00N 25-21-45E			4
POLOTSK					
Plissa 1		55-12-30N 28-01-45E			3
Plissa 2		55-11-30N 27-54-45E			4
POSTAVY					
Sivtsy		55-09-30N 26-53-45E			1
Bogatoye		54-57-15N 26-28-45E			4
Kobylnik		54-56-30N 26-37-15E			4
PRUZHANY					
Strigovo		53-23-15N 24-14-30E			4
Shcherby		52-23-00N 24-10-00E			4
RISTI					
Kloostri		59-13-00N 24-03-00E			4
RUZHANY					
Shchitno 1		52-43-15N 24-58-15E			4
Shchitno 2		52-41-00N 24-57-30E			4

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TABLE 7. (Continued)

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LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
SATEIKIAI					
Telsiai		55-56-45N 22-07-00E			4
Alsedziai		56-00-15N 22-06-00E			4
SLONIM					
Byten		52-54-30N 25-22-00E			2
SMORGON					
Smorgon		54-34-45N 26-21-30E			2
TAURAGE					
Skaudvile		55-23-00N 22-31-00E			4
Taurage		55-10-00N 22-14-30E			2
TORVA					
Valga		57-50-15N 25-54-15E			4
UKMERGE					
Gelvonai		55-07-15N 24-43-45E			4
Balninkai		55-13-00N 25-02-00E			4
USOVO					
Luginy		51-08-00N 28-23-00E			4
YELSK					
Yelsk		51-50-45N 29-05-15E			4
ZAGARE					
Dobele 1		56-40-00N 23-11-45E			4
Dobele 2		56-40-45N 23-06-45E			4
ZHITOMIR					
Berdichev		49-51-30N 28-25-30E			2
ZHMERINKA					
Vinnitsa		49-13-15N 28-18-45E			4
Bar		49-05-30N 27-43-00E			4
ZNAMENSK					
Pravdinsk		54-23-00N 20-59-45E			3
Domnovo		54-25-30N 20-53-00E			4
				TOTAL	292

*TDI site designators have been adopted for the fixed field sites, which are listed under the nearest permanent IRBM/MRBM complex.

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Table 8. Summary Evaluation of Soviet IRBM/MRBM Sites Without Support Facilities

Complex/ Site	BE Number	Coordinates	Type	Site Negated		First Seen/Const Status			Last Msn Site Intact		Dismantling First Observed		Remarks
				Date	Msn	Date	Msn	Status	Date	Msn	Date	Msn	
Bayram-Ali Bayram-Ali	[redacted]	37-46-00N 62-12-00E	III IRBM	[redacted]									2 barracks-type bldgs, RIM bldg removed; ready bldg bulldozed [redacted] destruction confirmed on [redacted]
Belomorsk Ramoye	[redacted]	64-25-45N 34-18-15E	III IRBM	[redacted]									2 barracks-type bldgs & RIM bldg removed on [redacted] bunkers between never completed
Bykhov Sledyuki	[redacted]	53-41-30N 30-20-30E	II MRBM	[redacted]									Abandoned on [redacted] all structures removed; [redacted] present
Fedorovka Traktovyy	[redacted]	53-25-15N 62-23-00E	III IRBM	[redacted]									2 barracks-type bldgs removed [redacted]
Kraskino Kraskino	[redacted]	42-44-00N 130-40-15E	II MRBM	[redacted]									2 barracks-type bldgs, 1 small bldg, & a RIM bldg removed
Marina Gorka Marina Gorka	[redacted]	53-26-30N 27-45-30E	II MRBM	[redacted]									[redacted] technical section having 2 poss bldgs first appeared on [redacted]
Rozhdestvenka Rozhdestvenka	[redacted]	45-47-15N 133-43-30E	II MRBM	[redacted]									Abandoned on [redacted] entrances to some bldgs appear sealed; bldgs partially destroyed
Uzhgorod Uzhgorod	[redacted]	48-33-30N 22-13-15E	II MRBM	[redacted]									No barracks-type bldgs seen associated with launch area
Zhuravka Zhuravka	[redacted]	54-36-30N 76-39-45E	III IRBM	[redacted]									1 barracks-type bldg & RIM bldg removed on [redacted]

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TABLE 9. COMPOSITION OF IRBM/MRBM COMPLEXES

No of Complexes		Containing Soft Sites Only				Containing Hard Sites Only			Containing Hard and Soft Sites		
		One Site, No Housing or Support Facility	One Site	Two Sites	Three Sites	One Site	Two Sites	Three Sites	Two Soft, One Hard Site	One Soft, One Hard Site	One Soft, Two Hard Sites
IRBM											
	3	3									
	2				2						
	5								1		3
	4					1		3			
MRBM	3	3									
	43		1	36	6						
	21								20	1	
TOTALS	81	6	1	36	8	1	0	3	21	2	3

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Table 10. Soviet ICBM, IRBM, and MRBM Systems, Estimated Technical Characteristics and Performance

	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10 1/
Initial operational capability (IOC)	[redacted]						
Nominal maximum range 2/ (NRE, non-rotating earth)	1,020 nm	2,200 nm	6,000 nm	6,000 nm	6,000 nm	6,000 nm	6,000 nm
Guidance	Inertial	Inertial	Radio inertial	Inertial	Radio inertial	Radio inertial 3/	Radio inertial
Circular error probability (CEP)							
Initial	1.25 nm	1.0 nm	2.0 nm	1-2 nm	1.0 nm	0.5-1.0 nm	Undetermined
Improved/year	--	--	--	1.0/1966	0.8/1967	0.5/1968-1970	Undetermined
Re-entry vehicle weight (lbs)	3,200, ± 500	2,500-4,000	8,000, ± 1,000	3,000-4,000 4/	2,500-4,000	10,000, ± 1,000	Undetermined
Warhead weight (lbs)	2,000, ± 300	2,000-3,200	6,000, ± 1,000	2,400-3,200	2,000-3,200	8,000, ± 1,000	Undetermined
Gross lift-off weight (lbs)	88,000 (approx)	200,000 (approx)	500,000 (approx)	300,000 (approx)	165,000 (approx)	400,000 (approx)	Undetermined
Configuration	Single-stage	Single-stage	Parallel	Tandem 2-stage	Tandem 2-stage	Tandem 2-stage	Tandem 2-stage
Propellant	Storable liquid	Storable liquid	Non-storable liquid	Storable liquid	Non-storable liquid	Storable liquid	Liquid
Reliability rates: 5/							
Ready-missile	80%	80%	80%	80%	80%	80%	Undetermined
Countdown							
Initial	90%	85%	85%	85%	85%	80%	Undetermined
Improved/year	--	--	--	--	--	85%/1967	Undetermined
Inflight							
Initial	85%	90%	85%	90%	90%	85%	Undetermined
Improved/year	--	--	--	--	--	90%/1967	Undetermined
Overall							
Initial	60% (soft) 65% (hard)	60% (soft) 65% (hard)	60%	60%	60%	55%	Undetermined
Improved/year	--	--	--	--	--	60%/1967	Undetermined

Table 10. (Continued)

	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10 1/
Reaction time from ready condition: 6/							
Condition 3	1-3 hrs	1-3 hrs	12 hrs (minimum)	1-3 hrs	1-3 hrs	1-3 hrs	Undetermined
Condition 2	15-30 min	15-30 min	1-2 hrs	15-30 min	30-45 min	15-30 min	Undetermined
Condition 1	5-15 min	5-15 min	5-15 min	5-15 min	5-15 min	5-15 min	Undetermined
Hold time in ready condition 1 7/	hrs-days	hrs-days	1 hr	hrs (soft) - days (hard)	1 hr (approx)	hrs (soft) - days (hard)	Undetermined
Refire time 8/	2-4 hrs	2-4 hrs	12 hrs (minimum)	2-4 hrs	2-4 hrs	2-4 hrs	Undetermined

1/ The evidence is insufficient to enable us to make a complete estimate of SS-10 characteristics and performance.

2/ Operational range is dependent on weight class of payload used.

3/ It is believed that the SS-9 has an additional all-inertial guidance capability with a CEP of 1-1.5 nm.

4/ More than one re-entry vehicle exists within these limits. Another, weighing as much as approx. 5,000 lbs (warhead 4,000 lbs) has been tested to a reduced range (4,700 nm).

5/ These reliability rates may be too high since they may not sufficiently take into account the effect of Soviet operational methods and troop training, which are at least as important as technical characteristics in determining system reliability. We have little basis for estimating these effects.

6/ Readiness Condition 3 is believed to be the normal readiness condition for missiles deployed at soft sites, and Condition 2 for hard sites.

7/ An unfavorable environment could seriously degrade these hold times. Because of the protection afforded a missile in a hardened site, it is given a longer hold time than its soft counterpart. We believe the cryogenic properties of non-storable propellants probably limit these missiles to a hold time of about 1 hour.

8/ Refire capabilities are applicable to soft sites only. Estimated refire times are based on the assumption that the launch sites were designed specifically for an efficient refire capability and that no major refurbishment of ground support equipment or launch stand is necessary.